

tudinal ridge on the lateral surface of the basal or proximal portion of an inferior vertebral arch or "basi-ventral" cartilage (*bv.*). From its point of attachment the rib is directed obliquely backwards and a little outwards, slightly overlapping the succeeding "interventral" or hæmal intercalary cartilage (*iv.*), and extending into the ventral edge of one of the fibrous septa separating two successive myotomes of the body-wall. Hence it follows that in the latter part of their course the ribs are situated immediately external to the peritoneal lining of the subjacent coelomic cavity, as in other Ganoids and in Teleosts. No trace of ossification could be detected in any of the ribs.

In two or three instances the cartilage of a rib was broken up into two or more separate nodules, as if undergoing fragmentation as a preliminary to suppression.

*Polyodon* therefore possesses a series of distinct but fully developed and wholly cartilaginous ribs, in substantial agreement with the account originally given by Stannius, but apparently overlooked by every subsequent writer.

When *Polyodon* is compared with its nearest living ally, *Acipenser*, the differences in the relative development of their costal elements are very striking. In the latter Ganoid, as is well known, nearly all the pre-cloacal "basi-ventrals" possess ribs, comparable both in size and in their relations to the coelomic cavity to the normally developed ribs of other Ganoids and most Teleosts, and of these the majority are more or less well ossified, only a few of the more diminutive posterior ones being reduced to the condition of simple cartilaginous rods or filaments. In *Polyodon*, on the contrary, the ribs are restricted to about one-half of the normal costiferous region of the vertebral column, and to this may be added their relatively minute size and wholly cartilaginous condition.

How far it is permissible to regard the ribs of *Polyodon* as incipient, nascent, or rudimentary elements, or as degenerate and vestigial structures, is by no means easy to determine with certainty, but their obvious uselessness, and especially their occasional tendency to undergo fragmentation, strongly suggest the probability of the latter alternative.

## 2. On the Spiders of the Suborder Mygalomorphæ from the Ethiopian Region contained in the Collection of the British Museum. By R. I. Pocock, of the British Museum (Nat. Hist.).

[Received June 2, 1897.]

(Plates XLI.-XLIII.)

This paper, based upon the material contained in the collection of the British Museum, deals with those species which are usually known as Trap-door Spiders and with the larger kinds of hairy

species so frequently spoken of in a comprehensive sense as 'Mygale.' These belong to the suborder to which I have elsewhere applied the name *Mygalomorphæ*, and differ from the vast majority of other spiders in possessing two pairs of lung-sacs, instead of one pair of lung-sacs and a pair of tracheal tubes, and in the circumstance that the mandibles project horizontally forwards, instead of vertically downwards, and that the fang closes almost longitudinally, instead of obliquely backwards. The African species presenting these features appear to me to be conveniently referable to four families, each containing a considerable number of genera and each in its broad outlines easily distinguishable from the rest; though, as is the case in almost all the groups of this rank within the order Araneæ (Spiders), not to mention other divisions of the Animal Kingdom, genera occur in each family which more or less partake of the characters of one or more of the others and makes the task of drawing a hard-and-fast line between the groups a task of no little difficulty. This consideration has induced Mons. Simon, and following him Dr. Thorell, to look upon all the genera mentioned in this paper, as well as many others from different geographical areas, as belonging to a single family. But it appears to me that the sections here recognized as families and subfamilies have a greater value, and are more easily defined than M. Simon's families *Theridiidæ* and *Argiopidæ*, and all the subfamilies of the latter, the diagnostic features of which he has not attempted to express in tabular form.

The families may be recognized as follows:—

- |   |               |
|---|---------------|
| a. Tarsi with only two claws on the legs, but furnished on each side of them with a dense tuft of hairs (ungual tufts).   |               |
| a'. The terminal segment of the posterior spinning-organs long; mandible without any apical setiform spines forming a 'rastellum' .....   | Theraphosidæ. |
| b'. The terminal segment of the posterior spinning-organs short and obtuse; mandible usually with a set of stout spiniform setæ forming a 'rastellum' .....   | Barychelidæ.  |
| b. Tarsi with three claws and almost always no ungual tufts.  |               |
| a <sup>2</sup> . Posterior spinners long and slender like those of the Theraphosidæ, but longer; the anterior spinners more widely separated; lower edge of mandible with a single internal row of teeth, as in the Theraphosidæ and Barychelidæ; no rastellum on mandible.                           | Dipluridæ.    |
| b <sup>2</sup> . Posterior spinners shorter and thick, the anterior adjacent: mandible armed below with two rows of teeth.  |               |
| a <sup>3</sup> . Mandible long, projecting as in the preceding families, with the fangs closing almost straight backwards; furnished with a rastellum either in the form of setiform spines or of a spine-tipped process; thoracicfovea usually strongly procurved. (Ground Trap-door Spiders.) ..... | Ctenizidæ.    |
| b <sup>3</sup> . Mandibles short, curving abruptly downwards; the fangs short, stout, and closing more obliquely inwards; not armed with a rastellum; thoracic fovea strongly recurved. (Tree Trap-door Spiders.) .....   | Migidæ.       |

So far as the habits of these families are known they afford some clue to the structural differences. The Ctenizidæ and Migidæ, belonging to the group of Trap-door Spiders, are of heavy build and adapted to a sedentary life; but while the former dig their burrows in the ground and are furnished in consequence with the armature of spines on the mandible, known as the rastellum, the latter spin their tubes on the trunks of trees, taking advantage of some suitable depression in the bark, or, with their strong mandibular fangs, biting away roughnesses and inequalities to form a level surface, and chipping off pieces of lichen or bark wherewith to conceal the silk. The Dipluridæ, on the contrary, spin snares in the form of horizontal sheets of webbing, which lead at one extremity into a silken tubular retreat; and since the livelihood of these species depends upon the agility with which they dart upon insects that fall upon the web, their light build and long slender legs become at once intelligible. The Barychelidæ live in burrows in the ground, and some of them make trap-doors like those formed by the Ctenizidæ. Many of the Theraphosidæ too dig tubes in the soil, but the tube is never closed by a door; while others of this section live in trees, spinning a silken domicile in the hollow trunks, in forked branches, or in rolled leaves.

#### Family CTENIZIDÆ, Thorell.

*Ctenizoidæ*, Thorell, Ann. Mus. Genova, xxviii. p. 394, 1889–1890 (—*Diplura*, &c.).

The known African genera of this family may be distinguished as follows:—

- a. Eyes forming a single cluster on the fore part of the head, being arranged in two transverse lines; maxilla (basal segment of palp) furnished with a longer process at its distal end, only armed with a few basal teeth; sternum with a pair of sigilla (scars) remote from the margin and opposite the coxæ of the 3rd pair of legs.— (Subfam. CTENIZINÆ.) ..... *Stasimopus*.
- b. Eyes forming two clusters, a pair situated close together in the middle line upon the border of the carapace; the remaining six some distance behind; maxilla with a smaller distal expansion, toothed all along the anterior edge; sternum with two pairs of sigilla close to the margin and opposite the bases of the 1st and 2nd legs.— (Subfam. IDIOPINÆ.)
- a'. Tibia of 3rd leg not excavated above at the base ..... *Acanthodon*.
- b'. Tibia of 3rd leg distinctly excavated above at the base. *Heligmomerus*.

Mons. Simon refers *Stasimopus* to a subfamily, the Actinopodinæ, which contains in addition the genus *Actinopus* from the Neotropical Region and *Eriodon* from Australia. In my opinion there is very little evidence that the three are related. In the first place, *Stasimopus* does not possess the square maxilla found in the other two, this segment being no wider than the other coxæ and nearly twice as long as wide, though it possesses a longer distal process



than most of the genera of Ctenizinae. It has, moreover, only a pair of submedian sternal sigilla, like, for example, *Pachylomerus*. And in the second place, though *Eriodon* possesses the nearly square maxilla, its sternal impressions or sigilla are quite different from those of *Actinopus*, numbering 4 pairs placed about halfway between the centre and the margin, increasing in size from before backwards, the anterior pair, representing apparently those that define the labium in *Stasinopus*, and corresponding to the palp, being small, close to the middle line and behind the base of the labium; whereas in *Actinopus* the sternal sigilla are indistinct, their inner extremities more or less running together to form a central depression on the sternum. Setting aside for the moment, however, the question as to the relationship between these two genera, it will, I think, be quite safe to remove *Stasinopus* from their vicinity and leave it in the subfamily Ctenizinae.

### Subfamily CTENIZINÆ.

#### Genus STASIMOPUS, Simon,

Hist. Nat. Araignées, i. p. 81 (1892).

This genus was based upon the species described by C. Koch as *Actinopus caffrus* from S. Africa (Die Arachn. ix. p. 98). It contains the following three forms:—

*Stasinopus caffrus*, C. Koch, Die Arachniden, ix. p. 98, fig. 751 (described as *Actinopus caffrus* from the Cape of Good Hope).

*Stasinopus rufidens*, Ausserer, Verh. z.-b. Ges. Wien, 1871, p. 160 (described as *Cyrtocarenum rufidens* from Natal).

*Stasinopus natalensis*, O. P. Cambridge, P. Z. S. 1889, p. 35, pl. ii. fig. 1 (described as *Pachylomerus natalensis* from Natal).

Unfortunately the figures published by C. Koch and Mr. Cambridge are so discrepant that no one would suppose them to represent the same genus, the width of the carapace in *caffrus* being only equal to the length of the cephalic area, whereas in *natalensis* and the specimens of the genus known to me the width is nearly as great as the length. Nevertheless there is, I think, but little doubt that the two are congeneric, very possibly co-specific.

Moreover, on geographical grounds it seems probable that *rufidens* is also co-specific with *natalensis*, and there is nothing in the descriptions to discredit such a belief. It may consequently be assumed, at all events provisionally, that this is the case.

#### STASIMOPUS RUFIDENS (Ausserer).

? Syn. *Actinopus caffrus*, C. Koch, loc. cit.

„ *Cyrtocarenum rufidens*, Ausserer, loc. cit.

„ *Pachylomerus natalensis*, Cambridge, loc. cit.

The British Museum possesses a single adult ♀ of this species,



recently received from Estcourt in Natal, 4000 ft. (*Guy A. K. Marshall*).

Mons. Simon (*Hist. Nat. Araignées*, i. p. 96) referred the species *natalensis*, Cambr., as well as *rufidens*, Auss., to the genus *Cyrtocarenum*. My surmise, however, that *natalensis* is referable to *Stasinopus* has been kindly verified by Mr. F. Cambridge, who examined the type at my request and furnished me with some notes respecting the inaccuracy of the figure and other matters, *e. g.* the claw-armature of the legs.

*STASIMOPUS OCLATUS*, sp. n. (Plate XLII. figs. 2-2*b*.)

*Colour* of carapace dark chestnut; legs and mandibles darker, the latter with copper-red hairs near the extremity.

*Carapace* longer than wide, its length almost equal to that of the patella, tibia, and protarsus of the 1st leg, excelling those of the 2nd, almost equal to the tibia, protarsus, and tarsus of the 4th; ocular area wide, width of posterior row equal to length of 1st protarsus and 4th tibia; eyes of front line slightly procurved, equidistant, the lateral larger than the median, distance between the median a little greater than their diameter; posterior line much wider, a line parallel to the long axis of the body and touching the outer edge of the anterior laterals would pass between the median and posterior laterals, nearer to the laterals but not touching them; posterior laterals larger than anterior medians; distance between anterior medians and posterior medians a little more than twice as great as distance between posterior medians and posterior laterals.

*Mandible* with its lower margin covered with granules, armed with 4 strong external teeth, 3 strong internal teeth, and one or two smaller ones.

*Labium* conical, with a pair of teeth. *Maxillæ* with a few basal teeth amidst the hairs. *Sternum* with a single pair of submedian sigilla; widest posteriorly opposite the coxæ of the 4th leg.

*Legs* 4, 1, 3, 2; patella and tibia of 4th equal to patella and tibia and one-third of the protarsus of the 1st; tarsi and protarsi of 1st, 2nd, and palp very closely and thickly studded with short spines; tibia of palpi with a few longish spines intermixed with hairs on the inner side, thickly spiny externally like the postero-inferior surface of these segments on the 1st and 2nd legs; tibia of 1st leg armed internally in its distal half with a cluster of over 12 spinules, tibia of 2nd with about 6 spinules in the same position; on the 3rd leg there are a few scattered spinules on the anterior aspect of the patella and a few on the tibia in front and behind; protarsus with a broad band of them in front and another behind, and a tuft of spiniform setæ at the distal end below; tarsus with a few spinules in front and behind; 4th leg not spined posteriorly; patella with a thick cluster of spinules in its basal half above; tibia and protarsus with scattered spines in front, protarsus with a posterior distal cluster of spiniform setæ; tarsus spiny in front. Tarsus of 3rd and 4th legs rather thickly hairy;

tibia of 4th also covered in front with a thick coating of silky red hairs. Claws of 1st, 2nd, and 3rd legs armed with a single long tooth and one short one. Claws of 4th leg unarmed.

*Measurements in millimetres.* Total length 30; length of carapace 13; width of posterior line of eyes 4.5; length of palp 16.5, of 1st leg 22, of 2nd 20.5, of 3rd 21, of 4th 27; length of 4th protarsus 6, of 1st protarsus 4.7.

*Loc.* Bloemfontein in the Orange Free State.

A single female example with its trap-door nest was received from Dr. Exton.

The door of this nest is thick with bevelled edge, being 37 mm. (almost  $1\frac{1}{2}$  inches) from side to side, and 30 mm. ( $1\frac{1}{8}$  inch) from hinge to the opposite border; the bore of the tube one inch from the aperture is about 23 mm. ( $\frac{1}{2}$  of an inch).

This species and the Natal form identified as *rufidens*, Auss., may be determined as follows:—

- |   |   |
|---|---|
| a. Width of the ocular area (posterior line of eyes) almost equal to the protarsus of 1st leg, and about three-quarters the length of the 4th protarsus; length of carapace almost equal to length of patella, tibia, and protarsus of 1st leg, greater than the same segments of the 2nd; protarsi of 3rd and 4th legs with apical tuft of spinules beneath .....                                    | <i>oculatus</i> , sp. n.<br>(Bloemfontein). |
| b. Width of ocular area (posterior line of eyes) equal to only about two-thirds of the protarsus or tibia of the 1st leg, and less than half the 4th protarsus; length of carapace just exceeding the length of the patella, tibia, and half the protarsus of the 1st leg, less than these three segments of the 2nd leg; protarsi of 3rd and 4th legs without inferior apical tuft of spinules ..... | <i>rufidens</i> , Auss.<br>(Natal).         |

#### Subfamily IDIOPINÆ, nov.

*Idiopeæ* of Simon, Hist. Nat. Araignées, i. p. 89 (1892)<sup>1</sup>.

#### Genus HELIGMOMERUS, Simon,

Hist. Nat. Araignées, i. p. 90 (1892).

In addition to the two African species recorded below, this genus contains two described by Simon from S. India and Ceylon.

HELIGMOMERUS SOMALICUS, Poc. (Plate XLI. figs. 8-8 a.)

*Heligmomerus somalicus*, Pocock, Ann. Mag. Nat. Hist. (6) xviii. p. 183 (1896).

A single typical example from the Goolis Mountains, Somaliland (*E. Lort Phillips*).

<sup>1</sup> Of the *Idiopeæ*, M. Simon says that apart from the eye-formula the group presents all the characters of the *Pachylomereæ*; this, however, is hardly in accordance with fact, since in *Pachylomerus* there is a single pair of submedian sternal sigilla corresponding to the 3rd pair of legs, those representing the 1st and 2nd pair being evanescent, whereas in the genera of *Idiopeæ* it is the latter sigilla that persist, the posterior pair having disappeared.

*HELIGMOMERUS CARSONII*, sp. n.

Closely allied to *H. somalicus*, Poc., but with the ocular area more compact, the posterior lateral eyes separated from the median laterals by a space which is less than the diameter of the latter, and the distance between the anterior median and posterior lateral not nearly twice as great as the distance between the anterior medians; distance between anterior medians equal to nearly twice their diameter; anterior lateral eyes closer to the rest, the tubercles that bear them more widely separated, the distance between them equal to the diameter of an anterior median eye, the oblong area formed by these eyes and the anterior medians a little longer than wide,

*Mandible* armed below internally with 7 (5 large and 2 small) teeth, externally with 4; *labium* with an irregular marginal series of 4 teeth and about 2 behind it.

*Sternal sigilla* situated as in *somalicus* but smaller. Spine armature of legs practically as in *somalicus*, except that there is no anterior spine on the tibia of the 4th leg.

*Measurements in millimetres.* Total length 14; length of carapace 5.5, of palp 7, of 1st leg 9, of 2nd 9.5, of 3rd 9.5, of 4th 12; patella and tibia of 4th 4.8; patella, tibia, tarsus, and protarsus of 1st 6, of palp 5.

*Loc.* Niomkolo, Lake Tanganyika (*A. Carson*). A single female specimen.

This specimen is perhaps not quite mature, and the differences it presents from the type of *somalicus* may be attributable to differences of age. But since there is no evidence of this fact and since the localities are widely separated, it is right to regard them as of specific value. Briefly the two forms may be distinguished as follows:—

- |   |                          |
|---|--------------------------|
| a. Distance between posterior lateral and posterior median eyes at least as great as the diameter of the latter; distance between anterior median eyes about equal to their diameters; the tubercles bearing the anterior lateral eyes close together, the distance between them less than the diameter of an anterior median eye ..... | <i>somalicus</i> , Poc.  |
| b. Distance between posterior lateral and posterior median less than the diameter of the latter; distance between anterior medians greater than their diameter; ocular tubercles separated by a space which about equals the diameter of an anterior median eye .....   | <i>carsonii</i> , sp. n. |

Genus *ACANTHODON*, Guérin.

Guérin, Rev. Zool. 1838, p. 10; Simon, Hist. Nat. Araignées, i. p. 91 (1892).

*ACANTHODON MEADII* (Cambr.).

*Idiops meadii*, Cambridge, Proc. Zool. Soc. 1870, p. 152, pl. viii. fig. 4.

A single specimen (*type*) from East Africa (*Capt. Speke*).



*ACANTHODON THORELLII* (Cambr.).*Idiops thorellii*, Cambridge, *op. cit.* p. 156, pl. viii. fig. 6.A single example (*type*) from S. Africa.*ACANTHODON LACUSTRIS*, sp. n. (Plate XLI. figs. 7-7 b.)

♀.—*Colour*. Carapace and mandibles deep brown; legs clearer, more castaneous, but the distal half, that is to say from the patella to the tarsus of the palpi and first two pairs, almost piceous, and contrasting strongly with the pale colour of the femora.

*Carapace* about as long as the patella and tibia of the 4th leg, excelling those of the 1st leg by about half the length of the protarsus; cephalic area not very strongly elevated, depressed behind the ocular cluster; anterior median eyes separated by a space equalling above twice their diameter, the space between these and the posterior laterals greater than that; posterior medians only a little smaller than anterior medians, separated from each other by about three diameters and from the posterior laterals and anterior medians by a space which a little excels their diameter; a line running parallel to the long axis of the body and touching the outer rim of the anterior medians would pass through the centre of the posterior medians; posterior laterals long, elliptical, but not twice the length of the anterior medians; anterior laterals on a double tubercle, about as wide as the anterior medians, the quadrangle they form being about parallel-sided and rather more than twice as long as wide.

Armature of *mandible* normal; the lower border furnished with about 6 external and 6 internal teeth. *Labium* with 2 teeth; *maxille* toothed all up their inner edge. *Sternum* convex from side to side; the sigilla opposite the coxæ of the 1st and 2nd legs, removed from the margin by a space which equals about half their own length.

Femora and patellæ of 1st and 2nd *legs* and *palpi* unspined, though coarsely bristly; tibiæ, protarsi, and tarsi armed externally and internally with numerous spines, shorter above, longer beneath, those on the outer surface of the tibia of the 2nd are long and setiform however, similar spiniform setæ being also observable on the lower surface of the patella and on the distal extremity of the femur of the palp; patella of 3rd with about half a dozen spines in front and one above; tibia with a few spines in front and behind and one or two below; protarsus with two series of spines above and below as well as others round the apex; tarsus with about a dozen spines below and at the sides; patella of 4th with a cluster of spines in its basal half in front, tibia unspined though with a few setiform spines below, protarsus strongly spined in its distal half below; tarsus strongly spined below and at the sides. Claws armed with a single strong tooth.

*Measurements in millimetres*. Total length 19; length of carapace 9; of palp and of 1st leg 18·8, of 2nd 16, of 3rd 16, of

4th 23; patella and tibia of 4th 8.5, of 1st 7.5; protarsus and tarsus of 4th 8.

*Loc.* Kinyamholo, Lake Tanganyika.

Two female examples.

The males of the genus *Acanthodon* differ so strikingly from the females that unless taken during courtship it is almost impossible to compare them together. From its distribution *A. meadii* might be the ♂ of *A. lacustris*, but would seem to be considerably too large; for whereas the males of nearly all spiders are smaller than the females, the type of *meadii* exceeds that of *lacustris*, the carapace measuring 12 mm. in length as compared with 10.5. Allowing for differences owing to drying, the eye-formula seems to be practically the same in the three species. The male of *thorellii* may, however, be at once recognized from that of *meadii* by having the carapace smooth instead of coarsely granular, and by its much smaller size, the carapace measuring only about 4 mm. in length.

The following two species are unknown to me:—

*Idiops compactus*, Gerstaecker in Von der Decken's Reisen in Ost-Africa, iii. ii. p. 484 (1873), based upon a female example from Dafeta (Kilimanjaro), is referable either to the genus *Acanthodon* or *Heligmomerus*.

*Idiops aussereri*, Simon, Bull. Soc. Zool. France, 1876, p. 223, from Landana on the Congo, is compared with *A. meadii*, Cambridge; but said to differ from all the known species of *Idiops* in possessing six (instead of four) spinning-mammillæ!!

The following genera and species from Africa belonging to the Ctenizidæ are unknown to me:—

*Acontius hartmanni*, Karsch, SB. Ges. nat. Fr. Berlin, 1879, p. 64. Loango.

*Aporoptychus africanus*, Simon, Act. Soc. L. Bordeaux, xlii. p. 405 (1889). Landana, Congo.

*Ancylotrypa fossor*, id. loc. cit. p. 406, Landana, Congo; and *spinosa*, p. 407, Port Elizabeth.

*Cyrtachenius zebra*, Simon, Ann. Soc. Ent. France, lxi. p. 272 (1893). Zululand.

*Homostola vulpecula*, id. loc. cit. p. 271. Zululand.

*Hermacha caudata*, id. Act. Soc. L. Bordeaux, xlii. p. 408. Delagoa Bay.

*Spiroctenus personatus*, id. loc. cit. p. 409. Delagoa Bay.

The first of these, namely *Acontius hartmanni*, is not satisfactorily diagnosed for classification. The second and third, namely *Aporoptychus* and *Ancylotrypa*, are referred by Simon to the section *Aporoptychæ* of his subfamily Ctenizinae, characterized by having the maxillæ nearly square as in *Actinopus* and *Eriodon*, and two pairs of small marginal sigilla opposite the 2nd and 3rd pairs of legs, the terminal segment of the spinning-mammillæ long and acuminate, while all or some of the feet have the claws biserially

dentate. They differ strikingly from the genera known to me; while *Ancylotrypa* is said to differ from *Aporoptychus* in having the labium as wide as long (in *Aporoptychus* it is much longer than broad) and the posterior tarsus spined.

*Cyrtauchenius* and *Homostola* belong to the *Cyrtauchenieæ*, which differ from the *Ctenizeæ* in having the anterior legs scopulate and no angular prolongation for the rastellum on the mandible. *Cyrtauchenius* has the posterior line of eyes wider than the anterior, and the latter strongly procurved; in *Homostola*, on the contrary, the two ocular lines are subequal, the first not strongly procurved, &c.

The remaining two genera, namely *Hermacha* and *Spiroctenus*, fall into the *Nemesieæ*, which differ from the *Cyrtaucheneæ* in having the head lower and the thoracic fovea transverse or recurved. In *Hermacha* the claws are furnished with two series of teeth; while in *Spiroctenus* there is but one.

#### Family M I G I D Æ.

= *Migineæ*, Simon, Hist. Nat. Araignées, i. p. 82 (1892).

Genus MOGGRIDGEA, Cambridge,

Ann. Mag. Nat. Hist. (4) xvi. p. 318.

MOGGRIDGEA DYERI, Cambr.

*Moggridgea dyeri*, Cambr. loc. cit. p. 318, pl. x.

Of this species the British Museum has one example from Uitenhage, near Port Elizabeth, whence the original specimens were obtained.

MOGGRIDGEA ABRAHAMI, Cambr.

*Moggridgea abrahami*, Cambridge, Proc. Zool. Soc. 1889, p. 44, pl. ii. (published in April).

*Moggridgea tidmarshi*, Lenz, Zool. Anz. xii. p. 578, 1889 (published on Nov. 4).

The British Museum has specimens of this species from Grahams-town, whence they were received together with their nests from the Rev. N. Abraham, who originally forwarded examples of this species to Mr. Cambridge. The typical examples of *tidmarshi* were from the same locality, and since the description of the two forms agree, there is no reason for supposing them to be distinct. Mons. Simon placed this species in the genus *Migas*, the type of which comes from New Zealand; but as I have elsewhere (Ann. Mag. Nat. Hist. (6) xvi. p. 187) stated, I can see no valid reason for regarding it as other than a well marked species of *Moggridgea*.

MOGGRIDGEA WHYTEI, sp. n. (Plate XLII. figs. 1-1 b.)

*Colour* of carapace a deep blackish brown, polished; legs indistinctly variegated, the patella and protarsi deeper coloured than the femora, the distal end of the tibia pale blue.

*Carapace* almost equal to the patella, tibia and protarsus of the Proc. Zool. Soc.—1897, No. XLVIII.



1st leg; clypeus nearly as long as the ocular area; anterior line of eyes slightly procurved, wider than the posterior line; posterior lateral eyes smaller than posterior median; radiating grooves on the carapace represented by shallow depressions, with the exception of a deep pit on each side behind the head.

*Mandible* armed below with 4 large internal teeth and 4 external, of which 3 are much smaller than the other.

Distal half of *labium* and front half of lower side of *maxilla* armed with strong spicules. *Sternum* broad, its width between the 1st coxæ equal to about half its length; furnished with a single pair of large sigilla remote from the margin and opposite the coxæ of the 3rd leg; *coxæ* of 2nd and 3rd legs armed behind with a cluster of spinules, that on the 3rd greater than that on the 4th.

*Legs*—1st and 2nd pairs stouter than 3rd and 4th; 4th a little longer than the 1st; tibia of 1st armed internally with 4 spines externally with 8, of which 3 are small and short; tibia of 2nd with 3 in front and 5 behind; protarsus of 1st with 8 larger and smaller behind and 6 in front; protarsus of 2nd with 7 behind and 6 in front; tarsi unspined; 3rd and 4th legs almost without spines, one stout one on the anterior side of the patella of the 3rd and spiniform setæ on the lower side of the 4th protarsus. *Claws* armed with a single long tooth and one or two smaller ones behind it.

*Palp* short, slender, extending just past the patella of the 1st leg, its tibia armed with 1 outer and 1 inner spine, tarsus with 2 outer and 2 inner spines.

*Measurements in millimetres.* Total length 15; length of carapace 7, width 6; length of palp 6·5, of 1st leg 11·5, of 2nd 10·8, of 3rd 9, of 4th 13.

*Loc.* The Nyika plateau 6000–7000 ft., between Lake Nyasa and Lake Tanganyika (*A. Whyte*).

The three species of the genus known to me may be readily recognized by the following table:—

- |     |   |                        |
|-----|---|------------------------|
| a.  | Sternum broader in front, its width between the 1st legs equal to about half its length; cluster of spinules on base of 3rd coxa larger than that on the 1st; eyes of anterior line nearly straight, the laterals separated from the edge of the clypeus by a space which is about equal to three diameters; posterior median eye larger than the posterior lateral ..... | <i>whytei</i> , sp. n. |
| b.  | Sternum narrower in front, its width between the 1st legs less than half its length; cluster of spinules on base of 3rd coxa larger than that on the 4th; distance between anterior lateral eye and edge of clypeus less than three times a diameter, the anterior row of eyes being more strongly procurved; posterior lateral eye larger than posterior median.         |                        |
| a'. | Eyes smaller and more scattered, the anterior laterals twice their diameter from the edge of the clypeus and three times their diameter from the medians, which are separated by a space equalling twice their own diameter; six spines on the outer side of the tibia and protarsus of 2nd leg; legs more or less parti-coloured .....                                   | <i>abrahami</i> , Camb |

- b'*. Eyes larger; anterior laterals about once their diameter from the edge of the clypeus and twice their diameter from the medians, which are separated by a space equalling their diameter; 4 spines on outer surface of tibia and protarsus of 2nd leg; legs uniform in colouring ..... *dyeri*, Camb.

The following species is unknown to me:—

*Moggridgea meyeri*, Karsch, Zeits. Naturwiss. (3) iv. p. 384 (1879), from Hantam (S.W. of Cape Colony nearly midway between Cape Town and the Orange River).

#### Family DIPLURIDÆ.

=*Diplurince*, Simon, Hist. Nat. Araignées, i. p. 174 (1892).

The two African genera of this group known to me may be readily recognized as follows:—

- a*. Tarsi furnished with distinct unguual tufts; claws with a single series of teeth, &c. .... *Heterothele*, Karsch.  
*b*. Tarsi without unguual tufts; claws armed with a double row of strong teeth, &c. .... *Brachythele*, Auss.

#### Genus BRACHYTHELE, Ausserer,

Verh. z.-b. Wien, 1871, p. 173; Simon, Hist. Nat. Araignées, i. p. 180 (1892).

BRACHYTHELE BICOLOR, sp. n.

*Colour*. Carapace deep brown, clothed with golden yellow hairs; mandible the same colour, with longitudinal bands of golden hair; legs with femora and lower surface of all the segments blackish, upperside of patella, tibia, and protarsus, especially patella, reddish and contrasting with the dark tint of the rest of the appendage, clothed with yellowish hairs intermixed with blackish setæ; (abdomen crushed); coxæ and sternum infusate.

*Carapace* a little longer than patella and tibia of 1st and 4th leg, almost as long as protarsus and tarsus of 4th; fovea a little recurved; tubercle high, anterior line of eyes slightly procurved; the eyes nearly equidistant, the space between the medians less than their diameter, laterals smaller than medians; posterior laterals a little smaller than anterior laterals, their short diameter shorter; the posterior medians perhaps about half the size of the anterior medians.

*Mandible* armed below with a single inner row of 8-9 teeth; *labium* with a single spicule, very short, with convex bristly border; the sigilla defining it very distinct, meeting in the middle line. *Sternum* oval, the sigilla very distinct, tuberculiform, the anterior two pairs submarginal, the posterior removed from the margin to a space which nearly equals their long diameter. *Maxilla* without stridulating organ; its internal basal portion thickly armed with a large number of clawed spicules.

*Legs* 4, 1, 2, 3; tarsi and protarsi of 1st and 2nd scopulate to the base, scopulæ more or less scanty but undivided; tarsal scopulæ

of 3rd and 4th divided by a complete band of setæ; protarsi of these legs with only faint traces of scopulæ at their distal ends; *tibiæ* of 1st and 2nd with 1, 1, 2 setiform spines below, *tibia* of 3rd with 2, 2, 2 setiform spines below and in addition 2 strong spines behind, 2 above and 3 in front; *patella* of 1st and 2nd leg unarmed, of 3rd with 2 spines in front and 2 behind; *patella* of 4th with 1 spine behind; protarsus of 1st and 2nd with 2 spines (3 on 2nd protarsus) beneath amongst the scopular hairs and 1 at apex; protarsus of 3rd armed with 15 spines arranged in rows of 3 each; protarsus of 4th with a large number of irregularly arranged spines. Each claw with two rows of strong teeth.

*Palp*: femur armed internally at apex with one spine, bristly, *patella* unspined; *tibia* armed below with about 7 spines, of which two pairs are at the apex; tarsus scopulate throughout below scantily posteriorly, with one external basal spine.

Posterior spinners more than half the length of the carapace, the apical segment the longest.

*Measurements in millimetres.* Total length 16: length of carapace 7.5, width 5.5; length of 1st leg 18, of 2nd 16.5, of 3rd 14.5, of 4th 20, of posterior spinner 4.3.

*Loc.* Durban (*H. A. Spencer*). A single female example.

The only other known S. African species of this genus is *B. capensis* from the Cape of Good Hope, described by Ausserer (*Verh. z.-b. Wien*, 1871, p. 175). The new species from Durban appears to differ from *capensis*, according to Ausserer's description, in having the 4th tarsus scopulate, in the colouring of its legs, the recurved thoracic fovea, &c.

Genus HETEROTHELE, Karsch,  
SB. Nat. Fr. Berlin, 1879, p. 64.

This genus was omitted by Simon from his classification of the *Diplurinae* as "*invisum et incertæ sedis*." The genus, however, is highly important, inasmuch as it partakes of the characters of Simon's *Dipluræ* and *Macrotheleæ*, and yet differs from both as well as from all the other genera of the family in possessing unguis tufts.

The tarsi of all the *legs* are weakly scopulate, the scopulæ being divided by a line of setæ; scopular hairs are also visible at the apices of the protarsi. The 3rd claw is distinct except on 1st leg, where it seems to be absent, but there is a very distinct unguis tuft on each side of it as Karsch states. The superior claws are furnished with a single row of teeth; the *tibiæ* and protarsi of the legs are strongly spined; the tarsi are straight, shorter than the protarsi and not flexible. The *tibia* of the 1st leg in the male is not spurred, and the spine of the palpal organ is long and slender.

The *thoracic fovea* is subcircular; the *ocular tubercle* wide, the anterior line of eyes almost straight.

The anterior spinners are adjacent, the distance between them



about equalling their thickness; the posterior spinners are long and slender, longer than the carapace, the second and third segments about equal and longer than the first; the third segment not flexible.

The *labium* and basal part of *maxillæ* are spinulose; the *sternum* oval with posterior sigilla submarginal.

In the possession of ungual tufts this genus appears to be peculiar in the family Dipluridæ. For the rest it falls into the Dipluræ in having the tarsi and protarsi scopulate, the tarsi unspined, and the anterior spinners close together, and into the Macrotheleæ in having the claws armed with a single series of teeth.

HETEROTHELE SPINIPES, sp. n. (Plate XLI. fig. 6.)

♂. *Colour* (specimen mostly rubbed). Carapace and limbs chestnut-brown, ocular tubercle and mandibles blackish; clothed with yellowish-brown hairs.

*Carapace* about as long as the patella and tibia of the 3rd leg, less than protarsus of 4th.

*Eyes* of anterior line very slightly procurved, the medians considerably larger than the laterals, the space between the medians rather greater than their radius, that between the medians and laterals rather less than the radius of the medians; posterior laterals smaller than anterior laterals, space between them about equal to short diameter of posterior laterals; median laterals considerably smaller than posterior laterals, the space between them about equal to half the space between the anterior and posterior medians.

*Mandible* armed below with 10 teeth, granular behind.

*Legs* 4, 1, 2, 3, long and slender; segments all normal; patella and tibia of 1st and 4th about equal, protarsus of 4th equal to protarsus and half the tarsus of the 1st; tibia and protarsus of 1st less than tarsus and protarsus of 4th; femora with spiniform setæ above, armed near the tip on the inner side with 1 spine, also 1 outer spine on the femur of the 3rd; patella of 3rd with an anterior and a posterior spine; tibia of 1st with 4 inferior spines (2 apical) and 1 anterior spine; tibia of 2nd with an extra anterior spine; tibia of 3rd and 4th with about 9 spines; protarsi also strongly spined.

*Palp* projecting past the patella of the 1st leg; its tibia about one-third longer than its patella, sometimes armed with an inferior spine; tarsus short, bilobate and weakly scopulate; the spine of the palpal organ slightly curved, stout basally, slender apically, but a little incrassate just before the tip, which though fine is truncate and very slightly bifid.

*Measurements in millimetres.* Total length 16; length of carapace 7, width 5·8; length of palp 10·5, of 1st leg 24, of 2nd 21, of 3rd 20, of 4th 26·5; posterior spinner 8.

*Loc.* Ugogo, German East Africa (*Emin Pasha*). A single male example.

The only other known species of this genus is its type *H. honesta*, Karsch, from Loango (SB. Nat. Freunde Berlin, 1879, p. 64). *H. spinipes* certainly appears to differ from *honesta* in several points. For example, in the latter the spinnerets are shorter than the carapace (6 mm.: 7.2 mm.), and on the tip of the tibia of the 1st leg on the inner side there are some long strong spines.

The only other known Ethiopian members of this family are:—*Macrothele gabonensis*, Lucas, Arch. Ent. 1858, p. 382. Gaboon (? generic position).

*Diplura longipalpis*, Karsch, Zeits. Naturwiss. (3) iv. p. 564. From W. Africa.

*Thelechoris karschi*, Bösenberg, Jahrb. Hamb. Anst. xii. p. 27, pl. ii. fig. 31 (1895). German East Africa.

These three species are unknown to me. Their generic determination appears to be doubtful.

#### Family BARYCHELIDÆ.

= *Barychelinae*, Simon, Hist. Nat. Araignées, i. p. 116 (1892).

#### Genus EUBRACHYCERCUS, nov.

*Carapace* oval, longer than wide; thoracic fovea broad, deep, its extremities procurved; cephalic area moderately elevated, compressed posteriorly, the radiating grooves deep; ocular tubercle moderately high. *Eyes* of anterior line strongly procurved, laterals close to the edge of the clypeus (not including the membranous border of the plate as clypeus), their posterior angles slightly in advance of the anterior border of the medians; distance between the medians almost equal to their diameter, distance between medians and laterals a little greater than diameter of the former; distance between the two laterals a little greater than the diameter of the anterior medians, and nearly if not quite equal to the long diameter of the anterior medians; distance between anterior and posterior medians nearly equal to radius of the former, the posterior medians, being close to the posterior laterals, about half their size, with their short diameter about equal to the radius of the anterior medians, which are a little smaller, area for area, than the anterior laterals; the membranous clypeus at least as long as the long diameter of the anterior lateral eyes, which are separated from each other by a space which a little excels twice their long diameter.

*Mandibles* with rake consisting of thickened spiniform setæ, intermingled with the normal setæ and overhanging the base of the fang; external surface of mandible naked below; the lower margin furnished with a single row of about 9 teeth and a few granules behind.

*Maxillæ* with a cluster of clavate granules on their basal inner angle.

*Labium* much wider than long; with a few (3) serially arranged clavate granules on the distal margin.

*Sternum* subspherical, almost as wide as long; posterior sigilla submarginal.

*Legs* elongate and slender; the anterior with scarcely any spines, the posterior somewhat strongly spined; tarsi and protarsi of 1st and 2nd somewhat thickly scopulate, the scopulae on protarsi extending to the base, though becoming scanty on that of the 2nd leg; tarsal scopula of 1st divided by a very faint line of setae, of 2nd distinctly divided, of 3rd and 4th divided by a band as broad as the segment, the scopular hairs being visible at the sides; protarsal scopulae of 3rd and 4th represented by a few hairs intermixed with setae and spines, scarcely traceable on the 4th. Ungual tufts distinct. Claws armed with a single short series of teeth in their proximal half.

*Spinners* with basal segment longer than the others taken together; the apical (?retracted) very much shorter than the second, only about one-fourth of its length.

This genus, with the ocular area wider than long, the distance between the lateral eyes not or hardly excelling their long diameter, and with normal mandibles, falls into the section *Leptopelmatea* of the subfamily *Barychelinae* of Simon (*cf.* Hist. Nat. Araignées, i. p. 117); and tested by the generic characters of the group published on p. 126, it is related both to *Leptopelma* and *Psalistops*, resembling the latter and differing from the former in having the anterior line of eyes strongly procurved, the posterior median eyes small and about half the size of the posterior laterals; the four anterior tarsi finely, the four posterior very broadly divided, the apical segment of the mammilla very obtuse and shorter than the second, &c., and, if the membranous border be not considered as clypeus, in having the anterior lateral eyes close to the edge of the clypeus. From both, however, it appears to differ in having but three labial teeth, Simon describing the labium of *Leptopelma* and, by implication, that of *Psalistops*, as "*inordinate spinulosa in parte apicali.*" It must be remembered, however, that the apparent differences from *Leptopelma* presented by the divisional line of setae on the tarsal scopulae may be merely a question of age. Unfortunately, since neither of the genera in question are known to me in nature, I can make no further comparison between them and *Eubrachycercus*.

*EUBRACHYCERCUS SMITHII*, sp. n. (Plate XLII. fig. 3.)

*Colour* a uniform ochre-yellow on carapace and limbs; testaceous yellow clouded with black on the upper side of the abdomen.

*Carapace* sparsely and subserially hairy; as long as the patella and tibia of the 1st and 4th legs and the tibia and protarsus of the 1st leg; less by about half the length of the tarsus than the protarsus and tarsus of the 4th leg.

*Legs* 4, 1, 2, 3; the 4th considerably the longest, its patella and tibia about equal to those of the 1st; 1st leg without spines



(? 1 at base of protarsal scopula); 2nd leg with one spine at base and another at apex of protarsal scopula; tibia and protarsus of 2nd and 3rd strongly spined, especially in front; the patellæ thickly studded with spiniform setæ; spinuliform hairs on the anterior aspect of the base of the coxæ, especially of the 1st and 2nd legs; tibia of palp spined beneath, its tarsal scopula divided.

*Abdomen* rather coarsely and sparsely hairy.

*Measurements in millimetres.* Total length 14; length of carapace 5·5, width 4·5; length of palp 9, of 1st leg 13·5, of 2nd 12·3, of 3rd 11·2, of 4th 17·5.

*Loc.* Somaliland (*Dr. Donaldson Smith*). A single female example, intermixed with immature and unidentified examples of a species of *Pterinochilus*.

#### Genus BRACHIONOPUS, nov.

Somewhat allied to the preceding, with substantially the same ocular arrangement, but the tubercle situated some little distance from the anterior border of the carapace, the clypeus thus constituted being about equal to half the length of the tubercle. The sternal sigilla are situated as in *Eubrachycercus*, and the labium is only furnished with a few minute granules; the adjacent area on the maxilla being also sparsely granular. *Legs* short and robust; the scopulæ are not broader than the segments, and the tarsal scopula of the palp and of the 1st leg are entire, those of the 2nd and 3rd just visibly divided, that of the 4th more distinctly so; the protarsal scopulæ of 3rd and 4th, though not very thick, extend past the middle of the segment; there are spines on the *legs* and the unguis tufts are exceedingly thick, completely concealing the two claws, which are not toothed. On the mandible there is a scarcely perceptible *rastellum*; some of the hairs being merely thickened and spiniform. The basal segment of the posterior *spinners* is about as long as the other two, and the second is a little longer than the conical apical segment.

#### BRACHIONOPUS ROBUSTUS, sp. n. (Plate XLII. fig. 4.)

*Colour.* Carapace and abdomen covered with golden brown hairs; mottled on the abdomen, especially at the sides and below, with blackish; small spots of brighter coloured hairs on the tibiæ and protarsi of the legs, and narrow bands of light coloured hairs at the extremities of the segments.

*Carapace* oval, cephalic area but little elevated, narrow; about as long as the patella, tibia, and protarsus of the 1st leg, and as the patella, tibia, and half the protarsus of the 4th; longer than the tarsus and protarsus of the 4th.

*Legs* short and robust; 4, 1, 2, 3; patella and tibia of 1st about equal to those of 2nd; patella of 1st longer than the tibia, much longer than the protarsus; patella of 4th equal to its tibia, shorter than its protarsus; palp without spines; 1st and 2nd legs with a single spine at the apex of the protarsus beneath; tibia of 3rd armed with two spines below and one in front, protarsus with one

spine beneath and four in front; tibia of 4th with two spines beneath and two in front, protarsus with one apical beneath and about five in front; all the spines intermixed with coarse bristles.

*Measurements in millimetres.* Total length 16·5; length of carapace 8, width 6; length of palp 9, of 1st leg 13·5, of 2nd 12·5, of 3rd 12·3, of 4th 16.

*Loc.* East London (*H. A. Spencer*). A single female example.

Apart from the characters pointed out in the generic diagnosis, this new Spider differs from *Eubrachycercus* in its much shorter legs, the carapace for example being one half instead of one third the length of the 4th leg, and as long as the patella, tibia, and protarsus of the 1st.

The two may be easily recognized as follows:—

- |  |                                    |
|--|------------------------------------|
| <p>a. Ocular tubercle close to the anterior border of the carapace (not including the membranous edge); unguis tufts not so thick, not concealing the claws, which are distinctly toothed; legs relatively long and slender, scopulæ of anterior pair broad; all the tarsal scopulæ divided, the posterior very broadly; protarsi of posterior legs scarcely scopulate .....</p> | <p><i>Eubrachycercus</i>, nov.</p> |
| <p>b. Ocular tubercle distinctly removed from the margin; unguis tufts very thick, concealing the claws, which are unarmed; legs short and thick, with narrow scopulæ; protarsal scopula of 3rd and 4th legs extending past the middle of the segment; tarsal scopulæ only finely divided .....</p>  | <p><i>Brachionopus</i>, nov.</p>   |

In addition to *Leptopelma* the two following genera of the family *Barychelidae* are found in the Ethiopian Region; namely, *Pisenor* and *Cyphonisia*, both described by Simon (*Act. Soc. L. Bordeaux*, 1889, pp. 409–411); but according to the diagnoses these genera fall into the section *Barycheleæ*, in which the ocular area is at least as long as wide. They both further differ from *Brachionopus* in having the anterior lateral eyes placed upon the anterior edge of the carapace. In some respects *Pisenor* seems to approach very closely to *Eubrachycercus*, but the two are certainly generically distinct, judging by what is said of the eyes of *Pisenor*, seeing that the ocular area of *Eubrachycercus* is transversely oblong, and nearly, if not quite, twice as broad as long.

*Cyphonisia* differs from *Pisenor*, according to Simon, in having the ocular area narrower in front than behind, and the thoracic fovea lightly recurved instead of transverse, &c.

The following species of these genera have been established:—

*Cyphonisia obesa*, Simon, *Act. Soc. L. Bordeaux*, xlii. 1889, p. 409. From the Congo (River Quiliou).

*Pisenor notius*, Sim. loc. cit. p. 411. From the Zambesi.

*P. nigellus*, id. ibid. From the Congo (Landana).

*P. höhneli*, id. *Ann. Soc. Ent. France*, 1890, p. 125. From Kilimanjaro.

Possibly to the genus *Pisenor* belongs the species described from Moschi as *Idiommatata lepida* by Gerstaecker (*Von der Decken's 'Reisen in Ost-Afrika,'* iii. 2. p. 485).

Family THERAPHOSIDÆ, Thorell (*sensu stricto*).

The classification of the large Spiders referred to in text-books as '*Mygale*,' and known at the present time to systematists as *Aviculariidae* or *Theraphosidae*, has hitherto proved to be a task of great difficulty and can as yet by no means be regarded as definitely settled. It is needless now to enumerate in detail the steps by which our knowledge of the group has been built up, and to trace the gradual appreciation of the value of characters for grouping the genera into natural assemblages. For practical purposes it will be sufficient to refer back no further than 1892, that is to say to Mons. Simon's latest classification<sup>1</sup>, which is a modification and an extension of the one propounded twenty years earlier by Dr. Anton Ausserer<sup>2</sup>.

Simon classifies the *Aviculariinae* (= *Theraphosidae*, Thorell, as adopted by me) as follows :—

- a. Scopulæ\* of at least the posterior tarsi divided by a line of bristles.
  - a'. Tarsal scopulæ of all the legs divided ..... *Ischnocoleæ*.
  - b'. Tarsal scopulæ of 1st and 2nd legs undivided.
    - a<sup>2</sup>. Tarsal scopulæ of 3rd and 4th legs divided ..... *Chætopelmateæ*.
    - b<sup>2</sup>. Tarsal scopula of 4th leg only divided.
      - a<sup>3</sup>. Legs armed with numerous spines ..... *Crypsidromeæ*.
      - b<sup>3</sup>. Legs without spines, except on the tip of the protarsi ..... *Phlogiæ*.
- b. Tarsal scopulæ of all the legs undivided.
  - a<sup>4</sup>. Legs without spines, or at most a few.
    - a<sup>5</sup>. Tarsi and protarsi narrower; generally spines at the tip of the protarsi; thoracic fovea generally semilunar ..... *Selenocosmieæ*.
    - b<sup>5</sup>. Tarsi and protarsi wider; legs not spined; fovea not semilunar.
      - a<sup>6</sup>. Thoracic fovea minute; anterior legs longer than the posterior ..... *Pæcilothericæ*.
      - b<sup>6</sup>. Thoracic fovea large and deep; posterior legs longer than the anterior ..... *Aviculariææ*.
  - b<sup>4</sup>. Legs with many spines.
    - a<sup>7</sup>. Posterior femora internally scopulate; protarsus of 4th pair not scopulate ..... *Theraphosææ*.
    - b<sup>7</sup>. Posterior femora not scopulate; protarsus of 4th leg with small scopula.
      - a<sup>8</sup>. Protarsus of 1st leg thickly scopulate to the base and usually without basal spines ..... *Eurypelmateæ*.
      - b<sup>8</sup>. Protarsus of 1st leg with scopula not reaching the base; with basal spines ..... *Homæommateæ*.

\* 'Scopula' is the term applied to the pad of velvety hairs that clothes the tarsus and sometimes the protarsus of the appendages.

Thus Mons. Simon's system rests primarily upon the presence or absence of a divisional line of setæ upon the tarsal scopulæ. But when discussing the value of the character as applied both to genera and groups of genera, I have elsewhere<sup>3</sup> remarked :—"If

<sup>1</sup> Hist. Nat. Araignées, i. p. 132 (1892).

<sup>2</sup> Verh. z.-b. Wien, 1871, pp. 122-224, also *op. cit.* xxv. 1875, pp. 125-204.

<sup>3</sup> Ann. Mag. Nat. Hist. (6) xvi. p. 228 (1895).



the young stages of a species in which, when adult, the pads are complete, that is show no median divisional line of normal hairs, be examined, it will be found that at first the tarsi are clothed with setæ, and these later on become intermixed with scopular hairs. As the animal increases in size the scopular hairs increase in number, gradually spreading over the tarsus, and apparently replacing the normal setæ. But the replacement does not take place at a uniform rate all over the foot; on the contrary, the pad, beginning at the sides, encroaches by degrees inwards, and, as a consequence, the last part to remain unoccupied is the middle line of the sole, which retains longest its primitive clothing of setæ. In the second place, it will further be noticed that the tarsal pads do not reach their full development contemporaneously, the order of their appearance corresponding with the order of the legs from before backwards—the first tarsus being covered before the second, the second before the third, and the third before the fourth; so that when the pads upon the first or second legs are complete, those on the fourth, or even the third, may still retain their divisional line” . . . “Hence it follows that the division of the scopulæ *may be* nothing but a sign of immaturity . . .” and a species belonging to section *a*” for example of the above table “will in its early days fall into the Ischnocoleæ, a little later into the Chætopelmateæ, then into the Crypsidromeæ.”

Nevertheless, species undoubtedly exist in which one or all of the tarsi retain throughout life the divisional band of setæ; but a study of such of these genera as have been available has convinced me that the groups based upon such a character are largely artificial, and that in a natural classification of the family, within one and the same group genera will be found either with all or none of the tarsal scopulæ divided; a conclusion which might be expected if the law of the growth of the tarsal scopulæ mentioned above be true. For the genera that present a band of setæ on the scopulæ are merely a little less specialized than those that lose them. It is, moreover, interesting to observe that in this character the adults of species of small size often resemble the young of closely-allied but larger-sized species.

In another paper<sup>1</sup> I endeavoured to show that most of the genera inhabiting the Oriental region fall into two families, named respectively the Ornithoctonidæ and Selenocosmiidæ; but it has since appeared to me advisable to reduce these to the rank of subfamilies, and term them Ornithoctoninæ and Selenocosmiinæ.

These subfamilies are based upon the possession of a peculiar form of stridulating organ lying between the mandible and maxilla, but the organ is quite different in the two groups. The genera presenting these organs also agree in a number of other features, not, however, sufficient in themselves to differentiate them from some of the African genera.

The Selenocosmiinæ contain the genera referred by Simon to

<sup>1</sup> Ann. Mag. Nat. Hist. (6) xv. pp. 165-184 (1895).

the Phlogiæ, most of the Oriental genera of his Selenocosmiæ, one genus of his Pœciliotheriæ, and one that would fall into his Ischnocoleæ. The Ornithoctoninæ contain the rest of the Oriental genera of his Selenocosmiæ.

But in addition to the Oriental genera, Mons. Simon referred to the Selenocosmiæ a considerable number of genera from Africa. It is these genera, together with the remaining genus of the Pœciliotheriæ, and several additions that constitute the subject-matter of the following pages.

These genera appear to me to fall into two well-marked sections, as arranged on the synoptical table. The first of these is no doubt a perfectly homogeneous assemblage, comparable to the Ornithoctonini or Selenocosmiinæ of the Oriental Region. The second section seems to me as a whole to be inseparable from the genera inhabiting South and Central America and the Mediterranean district of the Palæarctic Region. I have consequently grouped them provisionally (that is to say, pending a further examination of the S. American forms) as Theraphosinæ. This subfamily is, however, very heterogeneous: but to what extent it will ultimately prove divisible into minor groups must for the present be left an open question. My views respecting the classification of the Theraphosidæ may be briefly epitomised as follows:—

- |   |   |
|---|---|
| a. With a feathery scopula on the external surface of the mandible.   |   |
| a'. A stridulating organ present and consisting of a few enlarged plumose hairs on the mandible set in vibration by short spikes on the adjacent surface of the maxilla; sternal sigilla remote from the margin, &c. .... | ORNITHOCTONINÆ. Oriental Region.  |
| b'. Without a stridulating organ, or when present one consisting of bristles derived from the oral fringe on the mandible and a cluster of plumose hairs on the maxilla; sternal sigilla marginal, &c. ....               | HARPACTIRINÆ. South and East Africa.  |
| b. Without a feathery scopula on the outer surface of the mandible.   |   |
| a <sup>2</sup> . A stridulating organ present, and consisting of a cluster of bacilliform spines on the maxilla, and a series of spines or spiniform hairs on the mandible.....   | SELENOCOSMIINÆ. Oriental Region and Australia.  |
| b <sup>2</sup> . Without any stridulating organ between the mandible and maxilla .....  | THERAPHOSINÆ. Tropical and Subtropical America, Madagascar, Ethiopian Region, Mediterranean area of Palæarctic. |

These sections may be compared with Simon's "groups" as follows:—

Ornithoctoninæ (= Selenocosmiæ in part).

Harpactirinæ (= Selenocosmiæ in part).

Selenocosmiinæ (= Selenocosmieæ in part, Pæcilotheiæ in part, Ischnocoleæ in part, and Phlogiæ).

Theraphosinæ (= Selenocosmieæ in part, Pæcilotheiæ in part, Ischnocoleæ in part, Chætopelmateæ, Aviculariæ, Theraphoseæ, Eurypelmateæ, Homæommateæ).

The Ethiopian genera known to me may be recognized by the following characters :

- a. Outer surface of the mandible furnished above with a thick scopula or pad of feathery hairs ; (tarsal scopulæ entire ; claws not toothed ; anterior tibia of male with a single curved spine-tipped spur ; posterior sternal sigilla marginal).—Subfamily HARPACTIRINÆ.
  - a'. Thoracic fovea very deep and nearly circular, circumscribing a central tubercular prominence, as in the Central American genus *Sphærobothria* ; mandible and spinners as in *Pterinochilus* ..... *Ceratogyrus*, nov.
  - b'. Thoracic fovea normal, transverse.
    - a<sup>2</sup>. Inner surface of mandible without feathery scopula ; no stridulating organ, the inner surface of the maxilla between the oral fringe and the suture sparsely beset with simple setæ, the adjacent area on the mandible without rows of modified bristles ; apical segment of posterior spinners longer than the second... *Pterinochilus*, nov.
    - b<sup>2</sup>. Inner surface of mandible with feathery scopula above ; with stridulating organ, the area on the maxilla mentioned above bearing a thick cluster of notes in the form of feathery hairs, the adjacent area on the mandible below the external scopula with at least one series of modified setæ ; apical segment of posterior spinners shorter than the second ... *Harpactira*, Auss.
- b. Outer surface of mandible not furnished with scopula of plumose hairs, at most sparsely beset with normal bristles.—Subfamily THERAPHOSINÆ<sup>1</sup>.
  - a<sup>3</sup>. Thoracic fovea forming a round or transversely elongate pit.
    - a<sup>4</sup>. Protarsi and tibiæ of legs armed with many strong spines ; protarsal scopulæ scanty, not extending to the base of the segment on the legs of the 1st and 2nd pairs ; scopula of 4th tarsus divided by a complete band of setæ ; anterior tibia of male without spur ... *Miaschistopus*, nov.
    - b<sup>4</sup>. Leg with at most a few small spines at apex of tibiæ and protarsi beneath ; protarsal scopulæ thick, extending to base of segments on legs of 1st and 2nd pairs ; scopula on tarsus of 4th leg entire, or at most weakly (*Scodra*) divided in the adult.
      - a<sup>5</sup>. Sternal sigilla submarginal ; ocular area wide ; without spines on the tibiæ of legs ; scopulæ broad and very thick ; legs and body thickly hairy ; claws with a few small teeth ; anterior tibia of male without spur ..... *Scodra*, Becker.

<sup>1</sup> For another and more natural grouping of the genera of this section, see Supplement, p. 773.



- $\delta^5$ . Posterior sternal sigilla remote from the margin; ocular cluster compact; a pair of apical spines on the lower side of the tibiæ of all the legs; scopulæ narrower; body and limbs normally hairy; claws not toothed.
- $a^6$ . Tibia of 1st leg in male with a single spur tipped with two bunches of spines (patella and tibia of 4th leg not longer than those of 1st) ..... *Monocentropus*, nov.
- $b^6$ . Tibia of 1st leg in male unarmed (patella and tibia of 4th leg longer than those of 1st) ..... *Anoploscelus*, nov.
- $b^3$ . Thoracic fovea small, linear, crescentically procurved.
- $a^7$ . Tibiæ and protarsi of legs, especially those of the 3rd and 4th pairs, strongly spined; scopula of 4th tarsus divided by a distinct band of setæ; claws toothed; posterior sternal sigilla submarginal; male with a pair of tibial spurs ..... *Selenogyrus*, nov.
- $b^7$ . Tibiæ and protarsi of legs, with the exception of a few spines at the apices below, unspined; tarsal scopula of 4th leg (except in *Eumenophorus*) undivided; claws not toothed; posterior sternal sigilla remote from the margin; male without tibial spur (? in *Eumenophorus*).
- $a^8$ . Protarsal scopula on 4th leg almost absent; tarsal scopula of 4th divided by a broad band of setæ ..... *Eumenophorus*, nov.
- $b^8$ . Protarsal scopula of 4th leg distinct and entire; tarsal scopula of 4th thick and undivided.
- $a^9$ . Protarsal scopula of 4th covering only the distal third of the segment; (palp of male extending nearly as far as the apex of the tibia of the 1st leg) ..... *Phoneyusa*, Karsch.
- $b^9$ . Protarsal scopula of 4th extending almost to the base of the segment; (palp of male extending only just past the end of the patella of the 1st leg) ..... *Hysterochrates*, Simon.

The following genera are unknown to me:—

*Pelinobius*, Karsch (Jahrb. Hamb. Wissen. Anst. ii. p. 135, 1885), was based upon a male specimen named *muticus*, from Masailand, which, according to Karsch, differs from *belandana* (♀), the type of *Phoneyusa*, in wanting the apical spines upon the inferior surface of the tibia of the 4th leg. Simon, however, when comparing *Pelinobius* with *Harpaxotheria* (= *Phoneyusa*), states as differential characters of the former, firstly, that the posterior median eye is nearer the anterior median eye than it is to the posterior lateral, and secondly, that the protarsal scopula of the 4th leg is narrower than the segment. But it is not stated that these observations are based upon the type-species. Anyhow, the genus, if distinct from *Phoneyusa*, will fall under the section  $a^9$  of the above table.

*Loxomphalia*, Simon (Act. Soc. Linn. Bordeaux, 1889, p. 412),

will apparently come under heading  $b^5$ , being related in all probability to *Monocentropus* and *Anoploscelus*, but certainly differing in that the legs are without spines, and the protarsal scopula of the 4th leg extends almost to the base of the segment, as in *Hysterocrates*, near which Mons. Simon places it. There is a single species named *rubida*, which was obtained inland of Zanzibar.

*Solenothele*, Simon (Ann. Soc. Ent. France, 1891, p. 297), based upon a female, named *decemnotata*, from the Upper Congo. Seeing that the length of the specimen is given as only just over 16 mm., there is strong presumptive evidence that it is immature, and therefore no stress is to be laid upon the division of all the tarsal scopulæ by bands of setæ. Similarly with the colouring from which the specific name is taken, the young of many species of this group, e. g. *Avicularia*, being spotted on the abdomen.

The genus is said to differ from *Ischnocolus* in having the external spinners nearly as long as the abdomen, and the anterior two pairs of legs broader than the posterior and with wider scopulæ; the tibiæ and protarsi are spined, and the fovea is transverse, very lightly recurved.

Judging from these characters, the genus would fall under section  $a^4$  in the table, but should certainly be recognizable from *Miaschistopus* by its long spinners, widely scopulate 1st legs, &c.

Lastly the Madagascar genus *Encyocrates* would apparently fall under section  $b^4$ , but since the characters of the male are unknown and there is no mention in the original description of the position of the sternal sigilla nor of the armature of the claws, it is hard to say whether it would come under  $a^5$  or  $b^5$ . The tibiæ of the legs, however, are said to be unspined, which would separate the genus from both *Monocentropus* and *Anoploscelus*. Moreover a young specimen of a Theraphosine from Senbendrana (Madagascar) which I identify as an *Encyocrates*, has the sigilla submarginal and the claws untoothed.

The three following genera belonging to the Mediterranean area and occurring, at least in the case of *Chætopelma* and *Ischnocolus*, in the countries of North Africa, do not, so far as is at present, known, spread into the true Ethiopian Region.

*Chætopelma*, Ausserer (Verh. z.-b. Wien, 1871, p. 190), might be introduced into the table under section  $a^4$ , having the legs richly spinous &c.; but it certainly differs from *Miaschistopus* in having the tarsal scopulæ of 3rd and 4th leg divided, two tibial spurs on the 1st leg on the male &c. In these respects it resembles *Selenogyrus*, but is quite distinct owing to the form of the thoracic fovea which is broad and transverse. This genus has representatives in Egypt, Syria, and Arabia.

*Cratorhagus*, Simon (Act. Soc. Linn. Bord. xlv. p. 330, 1892), with two Mediterranean representatives, namely, *concolor* and *tetramera* from Syria (see Simon, Mém. Soc. Liège, (2) v. 1873, p. 31 &c.), is apparently closely related to *Chætopelma*, but at least differs in having the tarsal scopulæ of the 1st and 2nd legs in the adult as well as of the 3rd and 4th divided by a band of setæ.

*Ischnocolus*, Ausserer (Verh. z.-b. Wien, 1871, p. 184), represented by many species in the Mediterranean countries, differs from the two preceding in having no tibial spurs on the 1st leg in the male. It thus stands nearer to *Miaschistopus*, but may be recognized by having all the tarsal scopulæ divided; the division in *Miaschistopus* being restricted to the 4th leg.

Subfamily HARPACTIRINÆ, nov.

Genus HARPACTIRA, Ausserer,  
Verh. z.-b. Wien, xxi. p. 203 (1871).

HARPACTIRA TIGRINA, Ausserer, Verh. z.-b. Wien, xxv. p. 185 (1876). (Plate XLIII. fig. 5.)

In the type and other examples of this species the upper row of notes on the mandible consists of 5 hairs, and the lower of about 10 which gradually decrease in length posteriorly and project internally away from the adjacent and spiniform setæ. On the maxilla there are upwards of 30 notes, forming a thick cluster, those that lie nearest the suture being the largest, while internally and posteriorly they decrease in size and pass without interruption into the hairs of the oral fringe.

The organ is present in the young, but less perfect in its development. For example, in a specimen from East London the carapace of which measures but 5 mm. long, that of the adult attaining to 25 mm., the bristles of the mandible constituting the lower series have not become separated off from the adjacent setæ, though the upper series occupies the same position as in the adult; while on the maxilla only about a dozen of the notes are distinguishable. At this stage the feathery pad on the upper half of the outer surface of the mandible has not appeared; but it is fully formed and the organ complete in all its details in a half-grown specimen from the same locality, with the carapace 12 mm. long.

This species seems to have an exceedingly wide range in Africa. The Museum has examples from the following localities:—Port Elizabeth (including the type and specimens presented by *J. M. Leslie*); Kleinpoort, Eastern Karroo (*Anna Howarth*); East London (*H. A. Spencer*); Osborn, Pondoland (*T. W. Pocock*); Kei Road (*Capt. Trevelyan*); Matabelerland (*H. M. Beddington*); and Sheik Husein in Somaliland (*Donaldson Smith*), as well as others without special locality.

The occurrence of this form so far to the north as Somaliland is exceedingly remarkable. I have failed, however, to distinguish the single female specimen from that locality from Ausserer's type by any reliable character either of colour or structure. The two examples from Pondoland differ from the type in having the legs shorter as compared with the carapace: the carapace for example is considerably longer than the tarsus and protarsus of the 4th as well as a little longer than the tibia, protarsus and tarsus of the 3rd and at least equal to those of the 4th; whereas in the type and other



specimens, including the one from Somaliland, the carapace is only a little longer than the 4th tarsus and protarsus, and a little less than the three terminal segments of the 3rd leg. That the difference is not to be relied upon as of specific importance seems shown by the circumstance that of two of the Museum specimens taken by the same collector, presumably in the same locality, one resembles the type in length of leg-segments, and the other the Pondoland specimens. Unfortunately I have seen no male example of this species. Possibly the discovery of members of this sex will show that some of the forms here identified as *tigrina* are in reality specifically separable.

#### HARPACTIRA ATRA (Latr.).

*Mygale atra*, Latreille, Nouv. Ann. Mus. d'hist. nat. i. p. 70 (1832).

*Mygale funebra*, Walckenaer, Ins. Apt. i. p. 226 (1837).

*Mygale coracina*, C. Koch, Die Arachn. ix. p. 37, fig. 714 (1842).

There can I think be no doubt that the species named *coracina* by C. Koch is identical with that previously described by Latreille as *atra*, which Walckenaer intentionally renamed *funebra*.

The British Museum possesses an adult male and female from Simon's Town (*H. de la Garde*), one young female from Hoets Bay, near Cape Town (*H. A. Spencer*), a second young female from Worcester, Cape Colony (*H. A. Spencer*), and an adult male from Zululand (*J. F. Angas*), as well as specimens, male and female, without special locality.

Some of the distinctive features of this species are set forth in the subjoined table.

#### HARPACTIRA LINEATA, sp. n.

♀.—*Colour*. Hairy clothing of carapace greenish black, passing into ochre-yellow at the sides: the plate ornamented as in *H. tigrina*, but less definitely, with obscurely defined whitish lines radiating from the fovea; hairs on legs longish, greyish black, those on the sides and lower surface of the femora foxy red; sternum and coxæ obscure blackish brown.

*Carapace* exceeding in length the patella and tibia of the 4th leg as well as of the 1st, just about equal to the tarsus and protarsus of the 4th but distinctly less than the tibia, protarsus, and tarsus of the 3rd, and shorter by three quarters of the length of the tarsus than the same segments of the 2nd leg, and just equal to the tibia and protarsus of the 1st.

*Legs* 4, 1, 2, 3, the 4th a little longer than the 1st; patella and tibia of 1st longer than those of 4th, tarsus and protarsus of 3rd equal to those of 1st.

*Mandible* with the upper series of notes less oblique and less regularly arranged than in the other species, e. g. *tigrina*, and consisting of a nearly horizontal set of about 10 bristles; the lower series consisting of a cluster of short spines, which, however, are not separated from the adjacent bristles behind the oral fringe.

*Measurements in millimetres.* Total length (abdomen shrivelled) 35; length of carapace 21 (contracted in width from drying); length of 1st leg 50, of 2nd 47, of 3rd 42, of 4th 51; patella and tibia of 1st 19, of 2nd 17, of 3rd 15, of 4th 17.5.

*Loc.* S. Africa (*Dr. A. Smith*).

HARPACTIRA CURVIPES, sp. n.

♀.—*Colour.* Hairy clothing a tolerably uniform mouse-brown; fine whitish but indistinct bands at the extremities of the segments of the legs; coxæ and sterna darker; abdomen with lateral blackish stripes.

*Carapace* the same length as the tibia and patella of the 1st leg and 4th leg, distinctly shorter than the protarsus and tarsus of the 4th and shorter by about one-third of the tarsus than the tibia, protarsus, and tarsus of the 3rd.

*Legs* 4, 1, 2, 3; patella and tibia of 1st and 4th about equal; protarsus of 4th distinctly bowed, convex internally.

*Measurements in millimetres.* Total length 24; length of carapace 11; of 1st leg 29, of 2nd leg 26.5, 3rd leg 24.5, 4th leg 31; patella and tibia of 1st and of 4th, tarsus and protarsus of 4th 12.5; tibia, protarsus, and tarsus of 2nd 13.5, of 3rd 13.

*Loc.* Natal. A single female specimen.

HARPACTIRA CHRYSOGASTER, sp. n. (Plate XLIII. figs. 5 a-5 b.)

♂.—*Colour.* Carapace covered with greenish-black hairs; its margin like the upper side of the coxa and trochanter, with longer foxy-red hairs; mandibles and limbs clothed with greenish-black hairs intermixed with a coating of long setæ of a greyish-red tint; apices of femora, patellæ, tibiæ, and protarsi with a narrow transverse band of reddish hair; abdomen covered with hairs of a fiery red, indistinctly banded laterally with dark markings; sternum and coxæ dark, with a scanty clothing of red-tipped bristles.

*Carapace* a little shorter than patella and tibia of 1st and of 4th legs, its width just about equal to length of 4th protarsus; length of the clypeus about equal to half the length of the tubercle.

*Legs* 4, 1, 2, 3; patella and tibia of 1st and 4th about equal, protarsus of 4th excelling the protarsus and half the tarsus of the 1st; tibiæ of 1st, 2nd, and 3rd with a pair of inferior apical spines, and of 4th with an additional posterior spine; 3rd and 4th legs with a few spines at tip as well as at base of scopula. Tibia of the male with normal spur; protarsus but little modified, only slightly convex above at the base. Palpal organ of substantially the same shape as in *H. atra*.

*Mandible* with the inner scopula thick; the upper series of notes consisting of an oblique series as in *H. tigrina*; but the lower series composed of a thick cluster of shorter and longer spines removed some distance from the fringe; the notes on the maxilla numbering about fifty or more.

*Measurements in millimetres.* Total length 31; length of cara-

pace 16·5, width 13·5; length of 1st leg 47, of 2nd 44, of 3rd 41·5, of 4th 52; patella and tibia of 1st 17, of 2nd 15·5, of 3rd 13, of 4th 17.

*Loc.* S. Africa (the exact locality of this form is unfortunately not known).

The species of *Harpactira* known to me may be recognized as follows:—

#### *Males.*

- a. Lower cluster of bristles on outer surface of mandible farther removed from the oral fringe and composed of about four rows of spines; abdomen covered with a rich coating of fiery-red hairs; carapace black, with a row of reddish hairs; legs black, but the setæ foxy-grey distally ..... *chrysoaster*, sp. n.
- b. Lower cluster of notes on the mandible less close to the oral fringe and consisting of a single row of setæ; prevailing colour of body and limbs velvety black; setæ on the limbs a little greyish at the tips, those on the abdomen a foxy red ..... *atra* (Latr.).

#### *Females.*

- a. Protarsus of 4th leg noticeably curved from base to tip (carapace about the same length as the patella and tibia of the 1st and 4th legs, distinctly shorter than the tarsus and protarsus of the 4th) ..... *curvipes*, sp. n.
- b. Protarsus of 4th leg not noticeably bowed, straight.
  - a<sup>1</sup>. Lower series of notes on the mandible not isolated from the rest of the oral fringe; the upper series nearly horizontal and less regularly disposed; (carapace lineate, shorter by half the tarsus than the tibia, protarsus, and tarsus of the 3rd leg; equal in length to protarsus and tarsus of 4th leg) ..... *lineata*, sp. n.
  - b<sup>1</sup>. Lower series of notes isolated; upper series forming a regular and oblique series.
    - a<sup>2</sup>. Prevailing colour mouse-grey or brown, carapace dark with distinct white bands radiating from the fovea: carapace not less than tarsus and protarsus of 4th leg and tarsus, protarsus, and tibia of 3rd leg ..... *tigrina*, Auss.
    - b<sup>2</sup>. Prevailing colour black; carapace without white stripes, shorter than tibia, protarsus, and tarsus of 3rd leg and than protarsus and tarsus of 4th ..... *atra* (Latr.).

The following species are unknown to me:—

*Harpactira cafreriana*, Walckenaer, Ins. Apt. i. p. 225, 1837 (sub *Mygale*). Judging from the description, this species from Caffraria differs from *atra* and *tigrina* in being of a clear reddish colour.

*Harpactira villosa*, id. ibid. p. 226, from the Cape of Good Hope, is according to Walckenaer like *cafreriana*, but more hairy.

*Harpactira constricta*, Gerstaecker in Von der Decken's 'Reisen in Ost-Africa,' iii., 2. p. 486, and *H. chordata*, id. ibid. p. 487, from Dafeta, Kilimanjaro. According to Karsch (Mon. Ak. Wiss. Berlin, 1878, p. 316), *constricta* was based upon a young example of *chordata*.



*Harpactira elevata*, Karsch, *ibid.*, from Tette and Mozambique, is possibly also a *Pterinochilus*; but according to Bösenberg it is synonymous with *H. chordata*, Gerst. (see *Jahrb. Hamb. Anst.* xii. p. 27, 1894).

These species very likely belong to the genus *Pterinochilus*.

#### Genus PTERINOCHILUS, nov.

Allied to *Harpactira*, but differing in the entire absence of the stridulating organ, the area on the mandible below the feathery pad being merely sparsely clothed with simple setæ, without 'notes'; while the opposable area lying on the maxillæ between the suture and the oral fringe is also clothed with simple setæ. No feathery scopula on the inner surface of the mandible. Lastly the apical segment of the spinners is long and slender, being longer than the 2nd segment and not shorter than the basal segment.

Type, *P. vorax*, sp. n.

PTERINOCHILUS VORAX, sp. n. (Plate XLIII. figs. 3-3 e.)

*Carapace* blackish brown, clothed with hairs of an olive-grey tint, shining in parts with a silky golden lustre; edge of carapace and upper side of coxæ and trochanters clothed with long golden yellow hairs; hairs of the same bright tint on the upper surface of the mandible and the base of the femora on the upper side; legs covered with yellowish-brown hairs intermixed with black; tibiæ speckled with whitish spots; a rim of whitish hairs at the distal end of the upper side of all the segments, except the tarsus; inner side of anterior femora greyish black, outer and lower sides like the posterior two pairs of femora, clothed with yellowish-red hairs; abdomen covered with a mixture of blackish and yellowish hairs indistinctly spotted, sides and lower surface with an outer coating of long reddish-yellow hairs; sternum and coxæ of anterior appendages fuscous, posterior coxæ clothed with redder hairs than the anterior.

*Carapace* just about equal to the patella and tibia of 4th leg, shorter than those of the 1st and shorter than tarsus and protarsus of 1st, not quite one-fourth longer than wide, the width a little excelling the length of the patella and tibia of the 3rd leg, and a shade greater than the protarsus of the 4th; length of clypeus about half that of the ocular tubercle.

*Median eyes* separated by space a little less than their diameter, which is less than the long diameter of the other three; space between the laterals less than diameter of anterior medians.

*Legs* 1, 4, 2, 3, the 1st and 4th subequal; armed with very few spines; tibiæ with a pair or a few more at the tip beneath; protarsi of 3rd and 4th with a spine on each side at the base of the scopula and a few spines above and below at the apex of the segment, femur of 3rd thicker than the others; the protarsus of 1st (♂) with its inner border strongly hollowed out in the basal

half, leaving a wide distance between the segment and the tibial spur when the limb is flexed; tibial spur consisting of a single long, lightly curved spiniform process. *Palpal organ* with the spine broad at the base, lightly curved, pointed and filiform at the tip, arising from the posterior half of the bulb.

*Measurements in millimetres.* Total length 31; length of carapace 16.5, width 13.5; length of 1st leg 50, of 2nd 43, of 3rd 39, of 4th 49.5; patella and tibia of 1st 17.5, of 4th 16.

*Loc.* Fwambo, Lake Tanganyika (*Alexander Carson*).

*PTERINOCHILUS MURINUS*, sp. n. (Plate XLIII. fig. 4.)

*Colour* a nearly uniform mouse-brown, with little white tufts of hair at the extremities of the femora, tibiæ, patellæ, and protarsi of the legs.

*Carapace* less than one-fourth longer than broad, as long as the patella and tibia of the 4th leg, a little shorter than the same segments of the 1st leg and than the protarsus and tarsus of the 4th; a little longer than tibia and protarsus of 2nd and a trifle shorter than those of the 1st; length from the fovea to the anterior margin almost equal to the length of the 4th protarsus. *Clypeus* narrow, the distance between the tubercle and its edge about equal to one-fourth the length of the tubercle; distance between the edge of the clypeus and the lateral eye less than the long diameter of the eye; distance between the two lateral eyes equal to the short diameter of either.

*Legs* 4, 1, 2, 3, the 4th exceeding the 1st by about half the length of its tarsus; patella and tibia of 1st a little greater than those of 4th; protarsus of 4th equal to protarsus and half the tibia of the 1st; tibiæ of all the legs with a pair of inferior apical spines; protarsi of 3rd and 4th with a few spines above and below at the apex, one spine at the base of the scopula on the outer side. *Palpi* unspined; tarsus long, much longer than the tibia, about as long as the protarsus of the 1st leg; a little inflated at the base above.

*Measurements in millimetres.* Total length 35; length of carapace 13.5, of 1st leg 35.5, of 2nd 32.5, of 3rd 30, of 4th 38.5.

*Loc.* Ugogo (*Emin Pasha*). A single female example. The Museum also has females of the same or of closely allied species from Mombasa and from the N.E. of Lake Victoria Nyanza (*Dr. Ansorge*).

Apart from sexual characters this species and the preceding may be recognized as follows:—

- a. Ocular tubercle separated from the edge of the clypeus by a space equalling at least half its length; distance between the anterior lateral eye and the edge of the carapace exceeding twice its long diameter ..... *vorax*, sp. n.
- b. Ocular tubercle separated from the anterior edge of the carapace by a space less than one-fourth its length; distance between lateral eye and edge of carapace less, if anything, than its long diameter ..... *murinus*, sp. n.

## Genus CERATOGYRUS, nov.

Differing from *Pterinochilus* in that the thoracic fovea is very strongly procurved and forms almost a complete circle surrounding a central tuberculiform prominence which sometimes takes the form of a long conical process.

Type, *C. darlingii*, sp. n.

CERATOGYRUS DARLINGII, sp. n. (Plate XLII. fig. 5 and Plate XLIII. figs. 1-1 a.)

♀.—*Colour* as in the following species *C. marshalli*, but the carapace ornamented with radiating white lines as in *Harpactira tigrina*, and the lower side of the femora of the 3rd and 4th legs paler, and contrasting with the black of the coxæ much more sharply than is the case in *C. marshalli*.

*Carapace* exceeding the length of patella and tibia of 1st leg by one-third of the protarsus, of the 4th by one-half the protarsus; about equal to tarsus, protarsus, and tibia of 2nd; much exceeding protarsus and tarsus of 4th; elevated especially in the cephalic region; the process arising from the fovea taking the form of a long conical horn, longer than its basal width, which is twice the width of the ocular tubercle; tubercle nearly spherical, only a little longer than the clypeus.

*Legs* 1, 4, 2, 3; patella and tibia of 1st longer than of 4th, also longer than tarsus and protarsus of 4th, and almost equal to tibia, protarsus, and tarsus of 3rd; tarsus and protarsus of 3rd a little less than those of 2nd; spine armature as in the other species of the group.

*Measurements in millimetres.* Total length 51; length of carapace 24.5, width 20; length of 1st leg 59, of 3rd 51, of 2nd 44, of 4th 56; patella and tibia of 1st 22, of 4th 18.5; tarsus and protarsus of 4th 21.

*Loc.* Enkeldoorn, 110 miles S. of Salisbury in Mashunaland (*J. ffolliott Darling*). Three adult females.

I have great pleasure in dedicating this species, certainly the most remarkable Spider of this group that has been discovered of late years, to Mr. J. ffolliott Darling, who obtained the specimens by digging them out of their deep burrows.

CERATOGYRUS MARSHALLI, sp. n. (Plate XLIII. figs. 2-2 b.)

♂.—*Colour.* Carapace pitchy brown, clothed with dark olive-grey hairs, hairs of the same colour covering the upper side of the femora of the appendages, while the three distal segments of the limbs are clothed with grey hairs intermixed with black; the femora of the posterior two pairs are not, however, so dark as the others, being clothed, especially basally, with hairs of a greyish golden hue; the distal extremities of femora, patellæ, tibiæ, and protarsi are distinctly whitish, while on the tibiæ there are two faintly defined whitish lines; coxæ, sternum, and inner sides of femora and patellæ of palpi and first two pairs of legs velvety black, the outer sides of the anterior femora and the lower surface of the



rest of these and the other limbs clothed with foxy-grey hairs; abdomen blackish above, black and grey hairs intermingling; at the sides the greyish hairs predominate, while below the area between the spinners and the lungs is again black.

*Carapace* distinctly longer than patella and tibia of 4th leg but less than those of 1st and greater than tarsus and protarsus of 1st; the central tubercle in the middle of the fovea not rising above the level of the surrounding area of the carapace and consequently much wider at the base than it is high, its basal width a little excelling that of the ocular tubercle, which is high, wider than long, not quite twice as long as the clypeus. *Eyes* as in *Harpactira*; space between the medians rather less than their diameter, which about equals the space between the laterals and is not greater than their long diameter.

*Legs* 1, 4, 3, 2; patella and tibia of 1st considerably longer than those of 4th; tarsus and protarsus of 3rd a little shorter than those of 1st; tarsus and protarsus of 4th about equal to patella and tibia of 1st; legs spiny as in *Harpactira*; 3rd but little thickened; protarsus of anterior legs unmodified in male; tibial spine as in *Harpactira*, i. e. consisting of a curved conical process tipped with a long curved spine. Palpal organs on the same plan as in *Harpactira* and *Pterinochilus*.

*Measurements in millimetres.* Total length 35; length of carapace almost 18, width 15; length of 1st leg 54, of 2nd 47, of 3rd 41, of 4th 54; patella and tibia of 1st 20, of 4th 17.

*Loc.* Salisbury, Mashunaland (*J. ffolliott Darling*).

Two adult male examples.

Apart from some differences of colour this species may be at once recognized from the preceding by the small size of the cephalothoracic tubercle. There is no evidence that this distinction is merely of sexual importance.

I dedicate this species to Mr. Guy Marshall, who has been good enough to collect many Arachnida for the British Museum both in Mashunaland and Natal. As long ago as the spring of 1895, he sent me an example of this genus from Salisbury; but the specimen unfortunately had the carapace crushed in the region of the fovea, so that the clue to its generic peculiarity was destroyed and the example was set aside as an unidentifiable species allied to *Harpactira*.

#### Subfamily THERAPHOSINÆ.

##### Genus SCODRA.

*Scodra*, Becker, CR. Soc. ent. Belg. 1879, p. cxlii; Simon, Hist. Nat. Araignées, i. p. 174 (1892).

*Stromatopelma*, Karsch, Berl. ent. Zeits. 1881, p. 218.

SCODRA CALCEATA (Fabricius).

Syn. *Aranea calceata*, Fabricius, Ent. Syst. ii. p. 427.

„ *Scodra aussereri*, Becker, CR. Soc. ent. Belg. 1879, p. cxlii;  
ibid. 1881, pl. 2. fig. 1.

Syn. *Stromatopelma alicapillatum*, Karsch, Berl. ent. Zeits. 1881, p. 218.

The *Aranea calceata* of Fabricius was based upon a fragmentary specimen from Guinea; *Sc. aussereri* of Becker upon specimens from Liberia; and *St. alicapillatum*, Karsch, upon specimens from Accra in Fantee. Judging from the descriptions given by Becker and Karsch, the two species they described are identical. The *Aranea calceata* of Fabricius is also certainly identical with one of the species of this genus; and I see no valid reason for dissenting from Mons. Simon's opinion that it is synonymous with the one that Becker and Karsch have established.

The British Museum has in all 9 female specimens of this species; namely 6, varying in length from 19 to 48 mm., from Accra (*G. A. Higlett*), one from the Cameroons (*Capt. Burton*), one from Ashanti, and one from the Afran plains, inland of Ashanti.

SCODRA GRISEIPES, sp. n. (Plate XLIII. figs. 7-7 a.)

♀. A detailed description of this new species is unnecessary, seeing that it apparently only differs from the foregoing in the colouring of the underside of the femora. In *calceata*, or, to be strictly accurate, in the forms described as *aussereri* and *alicapillatum*, the lower side of the femora of the legs and palpi as well as the inner surface of the femora of the 1st and 2nd pairs and of the palpus are distinctly black, being, like the coxæ and sternum, clothed as Becker describes it, "*d'une très épaisse couche de poiles noirs courts veloutés*," and against the black the bright foxy-red hairs on the outside of the segments show up conspicuously. But in *griseipes*, though the sternum and coxæ are dark brown, the lower and inner sides of the femora of all the appendages are clothed with whitish-grey hairs, and the long setæ on the limbs are rather yellowish brown than foxy red.

In the adult the length of the carapace is a little less than or about equal to that of the patella and tibia of the 4th leg, a little greater than those of the 2nd leg, and by about the same amount less than those of the 1st, while it falls short of the length of the tibia and protarsus of the 1st leg by more than one-third of the protarsus, and is just about equal to those two segments on the 3rd leg. The proportions seem to be practically the same in *Sc. calceata*.

♂. In this sex the legs are relatively longer and more hairy, with longer fringes; the carapace broader, flatter and more woolly; the upperside of the abdomen with a thick woolly clothing of hairs copiously intermixed with bristles; the hairs on the sterna and coxæ are paler in colour than in the female, the maxilla showing up darker on account of its scantier clothing.

Length of carapace equal to that of 4th protarsus, slightly shorter than patella and tibia of 3rd leg, equal to protarsus of 1st + the area to the base of the spot on the tarsus, about equal to the patella and tibia of the palpi; less than the tibia + the area to the spot on the 1st leg. The protarsus of the 1st l

is furnished at the base on the inner side with a conspicuous tuft of scopulate hairs, the segment at this spot being distinctly bowed, its lower surface being convex basally and its upper concave (this character is readily perceptible by touch, less so by sight owing to the thickness of the hairs); a similar scopular tuft has been described by Karsch in the male of his *alicapillatum*.

Viewed from the front the palpal spine is seen to curve a little outwards, but from the outside it is almost quite straight and defined behind at the base by a shallow notch.

*Measurements in millimetres.*—♀ (type). Total length 48; length of carapace 25, width 22; length of 1st leg 72, of 2nd 64, of 3rd 56, of 4th 66; patella and tibia of 1st 27, of 4th 24; tibia and protarsus of 1st 30; tarsus and protarsus of 4th 24<sup>1</sup>.

♂. Total length 32; length of carapace 14, width 13; length of 1st leg 54, of 2nd 50, of 3rd 43, of 4th 53; patella and tibia of 1st 20, of 4th 18.5; protarsus and tarsus of 4th 20.

*Loc.* Sierra Leone. Specimens of both sexes received from various sources, including Mr. Charles Wilson and Mr. Mitford.

SCODRA BRACHYPODA, sp. n. (Plate XLIII. figs. 8–8 a.)

♀.—*Colour* practically as in *griseipes*; prevailing tint an ashy yellowish grey; an irregular brownish band on each side of the carapace from the ocular tubercle backwards; a black patch on the upperside of the tarsus and protarsus, and a less distinct double one at the base of the tibia; femora, patellæ, and tibiæ in part with a pair of pale whitish lines; abdomen with a median interrupted band, spotted at the sides.

*Carapace* a trifle longer than the patella and tibia of the 1st leg, and as long as its tibia and protarsus, and as the tibia, protarsus, and half the tarsus of the 3rd (4th leg absent).

♂. Differing from the female in the same respects as in the case of *Sc. griseipes*; differing from the male of *Sc. griseipes* in the following particulars. There is no cushion-like projection on the base of the scopula of the 1st protarsus, and this segment is not bowed but straight, and the palpal spine when viewed from the front is not lightly curved outwards but rather inwards, while from the side it is seen to be very distinctly arched from the base to the point; the point, moreover, is not evenly and gradually attenuate, but is more abruptly narrowed in the distal third of its length.

The length of the carapace is a little greater than the length of the 4th protarsus, a little longer than the patella and tibia of 3rd leg, equal to the protarsus of 1st + the area of the tarsus to the distal end of the spot, a little greater than the patella and tibia of the palp; equal to the tibia of the 1st leg + the part reaching up to the spot on the protarsus.

*Measurements in millimetres.*—♀ (type). Total length 35; length of carapace 15, width 13; length of 1st leg 37, of 2nd 34,

<sup>1</sup> In this and all cases the measurements of the limbs are taken from the base of the femur.



of 3rd 32 (4th absent); patella and tibia of 1st 14, tibia and protarsus 15.

3. Total length 28; length of carapace 14, width 13; length of 1st leg 49, of 2nd 45, of 3rd 39, of 4th 52; patella and tibia of 1st 17, of 4th 18; protarsus and tarsus of 4th 19.

*Loc.* Asaba, on the river Niger (*Dr. Crosse*). Two males and a female. Also a male of apparently the same form from Cape Palmas (*Alvan Millson*).

The female specimen, judging from its size as compared with the male and with the adult females of *calceata* and *griseipes*, is not full-sized. But the shortness of its legs cannot be ascribed to immaturity, seeing that much smaller examples of *calceata* have the appendages relatively as long as the adult.

The following key will serve to differentiate the females of the three known species of the genus.

- |   |                            |
|---|----------------------------|
| a. Carapace longer than the patella and tibia of the 1st leg, and as long as the tibia and protarsus of this limb, &c. ....   | <i>brachypoda</i> , sp. n. |
| b. Carapace considerably shorter than the patella and tibia of the 1st leg, and shorter by at least one-third of the protarsus than the tibia and protarsus of the 1st. |                            |
| a <sup>2</sup> . Lower and inner surfaces of femora of palp and of the first pair of limbs greyish or yellowish brown; long hairs yellowish brown .....                 | <i>griseipes</i> , sp. n.  |
| b <sup>2</sup> . Lower surface of all the femora and inner surface of those of the palp and first two pairs of legs velvety black; long hair on limbs foxy red .....    | <i>calceata</i> (Fabr.).   |

The males of the two species known to me may be recognized by the following table:—

- |   |                     |
|---|---------------------|
| a. Protarsus of 1st leg with basal curvature and inferior scopular tuft; spine of palpal organ straight; patella and tibia of 4th leg shorter than of 1st leg; 4th protarsus as long as carapace. &c. ....                                      | <i>griseipes</i> .  |
| b. Protarsus of 1st leg without basal curvature and without inferior scopular tuft; spine of palpal organ more curved, its apex more suddenly attenuate; patella and tibia of 4th longer than of 1st, 4th protarsus shorter than carapace ..... | <i>brachypoda</i> . |

#### Genus MONOCENTROPUS, nov.

*Carapace* oval, longer than wide; fovea shallow, transverse, wider than ocular tubercle; tubercle small, subcircular; eyes of anterior row somewhat strongly procurved, of posterior row recurved; clypeus very narrow.

*Mandibles* without external scopula; a single row of teeth below; the posterior portion of the lower surface weakly granular.

*Labium* a little wider than long; its border granular like the inner angle of the maxilla.

*Sternum* oval, longer than wide; the posterior sigilla distinctly removed from the margin.

*Legs*: tarsal scopulæ entire; protarsal scopulæ also undivided, except partially so on the 4th, on the 1st and 2nd legs extending practically to the base of the segment; covering about two-thirds of the segment in the 3rd leg and half in the 4th; legs unarmed except for a pair of spines at the tips of the tibiæ and protarsi beneath; length 4, 1, 2, 3; patella and tibia of 4th about equal to those of the 1st; claws unarmed. *Spinners* considerably more than half the length of the carapace.

*Tibia* of ♂ armed with a single spine-tipped tuberculiform process.

MONOCENTROPUS BALFOURI, sp. n. (Plate XLI. figs. 1-1 a.)

*Colour*. Carapace covered with olive-yellow pubescence, showing a pinkish tinge towards the margin; legs covered with olive-brown hairs; the base of the femora and upperside of the trochanters greyish white; the lower side of the femora clothed with whitish or yellowish-white hairs and contrasting very forcibly in colour with the chocolate-brown tint of the coxæ and of the segments on the distal side of the femora; abdomen furnished with long greyish-red hairs at the side, black beneath.

*Carapace* moderately convex, its cephalic area not strongly elevated; a little longer than the 4th protarsus, shorter than patella and tibia of 4th leg.

*Eyes* not very unequal in size; the anterior medians if anything the smallest, distinctly smaller than the anterior laterals, and separated by a space that about equals their diameter, a little nearer to the anterior laterals; a straight line touching their front borders cutting near the centres of the laterals; posterior median about as large as the posterior lateral and closer to it than to the median.

*Tibia* of ♂ armed with a low tuberculiform process beset with two tufts of rigid lanceolate spines; the lower surface of the anterior two pairs of femora as well as the femur of the palp furnished externally with long thickly-set hairs, tibia of palp also thickly hairy below; tarsus of palp apically thickly scopulate; the bulb globular, the lightly arcuate spine rising abruptly from its posterior portion (*see figure*).

*Measurements in millimetres*. Total length 34; length of carapace 16, width 13; length of 1st leg 50, of 2nd 47, of 3rd 45, of 4th 53; patella and tibia of 1st 18·8, of 2nd 16·5, of 3rd 15, of 4th 18.

*Loc*. Socotra. A single adult male example (*I. B. Balfour*).

#### Genus ANOPLOSCELUS, nov.

*Carapace* oval, much longer than wide; the fovea deep and transverse; ocular tubercle moderately elevated, close to edge of carapace; the anterior line of eyes very nearly straight, only slightly procurved.

*Legs* without spines except at the extremities of the tibiæ and protarsi; the 1st protarsus scopulate almost to the base, 2nd with

about two-thirds scopulate, about half the 3rd covered, and one-third of the 4th; all the tarsal scopulæ entire; legs 4, 1, 2, 3, patella and tibia of 4th longer than those of 1st; claws unarmed.

*Tibia* of ♂ not spurred.

Posterior sigilla on *sternum* remote from the margin.

*Labium* transversely oblong, wider than long, thickly and closely granular on its margin like the inner angle of the maxilla.

*Mandible* without external pad; area of maxilla between fringe and suture sparsely bristly.

*ANOPLOSCELUS CELERIPES*, sp. n. (Plate XLI. fig. 3.)

*Colour* ferruginous, the hairy clothing of the body and limbs a nearly uniform ochre-yellow; the segments of the legs with a narrow distal whitish band.

*Carapace* as long as the patella and tibia of the 2nd leg, shorter than those of the 1st and 4th and scarcely excelling the length of the 4th protarsus.

*Anterior median eyes* distinctly the largest of the set, separated by a space less than their diameter and from the anterior laterals by a space about equalling their radius; anterior laterals with their long diameter about equaling that of the medians and twice their own short diameter; the eyes themselves about twice as large as the posterior laterals, which are themselves close to and a little larger than the posterior medians.

*Legs* 4, 1, 2, 3; tarsus and protarsus of 1st very slightly shorter than those of 2nd, which are shorter than those of the 3rd leg; protarsus of 4th as long as tarsus and protarsus of 1st and as patella and tibia of 3rd; femur of 3rd leg very much swollen, rounded, as wide as it is high, the width as great as the area on the carapace that lies between the fovea and the hind border; tibiæ and tarsi of 1st leg in ♂ unmodified.

*Papal organ* with spine moderately thick, lightly curved, not twice as long as the length of the bulb, sharp and attenuate at the apex but not filiform. A feathery scopula on external surface of femur of palp.

*Measurements in millimetres.* Total length 27; length of carapace 13, width 10; length of 1st leg 40, of 2nd 36, of 3rd 36, of 4th 47; patella and tibia of 1st 15, of 4th 16.5.

*Loc.* Komboli, Lake Tanganyika. A single male example (*W. H. Nutt*).

#### Genus *PHONEYUSA*, Karsch.

*Phoneyusa*, Karsch, Berl. ent. Zeits. 1884, pp. 347-348. Type *P. belandana*, Karsch.

*Phoneyusa*, id. op. cit. 1886, p. 82.

*Harpaxotheria*, Simon, Act. Soc. Linn. Bord. 1889, p. 413. Type *antilope*, Sim.

As I have already pointed out (*Ann. Mag. Nat. Hist.* (6) xv. p. 167), the species named *belandana*, Karsch, is the type of the genus *Phoneyusa*, since it was the sole species upon which the



genus was primarily based. And since the type of *Harpaxotheria*, namely *antelope*, is admitted by Mons. Simon (*see* Hist. Nat. Araignées, i. p. 154, 1892) to be congeneric with *belandana*, it is clear that *Harpaxotheria* is a synonym of *Phoneyusa*.

PHONEYUSA GREGORII, sp. n. (Plate XLIII. figs. 6-6 a.)

♂.—*Colour* deep brown; the carapace and legs clothed above with bright reddish-brown hairs; hairs on the lower side of the tibia of the palp long and numerous; a long scopula of feathery hairs on the outer side of the femur of the palp; upperside of abdomen furnished with long bristles.

*Carapace* distinctly shorter than the patella and tibia of the 1st and 4th legs, only a little longer than the 4th protarsus; ocular tubercle moderately convex, about one-third wider than long; eyes of anterior line slightly procurved, the median a little larger than the lateral, separated by a space a little less than their diameter; posterior lateral smaller than the anterior lateral; the posterior median still smaller, closer to the posterior lateral than to the anterior median.

*Legs* long, 4, 1, 2, 3; patella and tibia of 4th and 1st almost equal; protarsus of 4th just equal to patella and tibia of 2nd; femur of the 3rd incrassate, nearly as thick as high, much thicker and higher than its patella; scopulae all complete; protarsi of 1st and 2nd scopulate to base, of 3rd with more than its distal half covered, of 4th with quite its distal third covered; protarsi with at least one spine at the apex; tibiae of 3rd and 4th with a pair of spines, of 2nd with 3 spines, two being external, of 1st with two external spines and a cluster of three on the inner side.

*Palp* long; patella, tibia, and tarsus as long as the carapace; unspined; spine of palpal organ distally attenuate, curved forwards, then outwards, with a strong basal keel on its outer side.

*Measurements in millimetres.* Total length 41; length of carapace 21.5, width 18; length of palpus 34.5, of 1st leg 63, of 2nd leg 58.5, of 3rd leg 56, of 4th leg 73; patella and tibia of 1st 23.8, of 4th 24; of 4th protarsus 20.

*Loc.* Kilungu, Iveti Mountains (Masailand). A single male example obtained by Dr. J. W. Gregory.

The type of this species is much larger than those of *gracilipes* and *ectypa* mentioned below, which are also males, the carapace in these measuring 11 and 12 mm. respectively. In the former, moreover, the 4th leg is more than four times as long as the carapace, and there are 8-10 spines on the lower side of the 1st tibia. *P. ectypa*, on the contrary, would seem to resemble this new form in most particulars, so far as can be judged from the description; but apart from its much smaller size there is no mention of the band of scopular hairs on the outer side of the femur of the palp<sup>1</sup>.

<sup>1</sup> This character may be of generic importance, since it is found in all the species of *Hysterochrates* known to me, as well as in *Acentrocnemis*.

The following species of this group have been described. All are unknown to me :—

*Phoneyusa belandana*, Karsch, Berl. ent. Zeits. 1884, p. 347, 348; from Niam Niam (Central Africa).

*Phoneyusa büttneri*, Karsch, Berl. ent. Zeits. 1886, p. 83, from Sibangefarm (Gaboon).

*Phoneyusa antilope*, Simon, Act. Soc. L. Bordeaux, xlii. p. 414 (1889), from Tombu (Congo).

*Phoneyusa gracilipes*, id. *ibid.*, Landana (Congo).

*Phoneyusa ectypa*, id. *loc. cit.* p. 415, from Abyssinia.

The following species also probably belongs to this genus :—

*Selenocosmia nigroventris*, Marx, Proc. U. S. Museum, xvi. p. 587, pl. 70. fig. 1 (1893), from the Congo.

#### Genus HYSTEROCRATES, Sim.,

Hist. Nat. Araignées, i. p. 153 (= *Hysterochrates* + *Phoneyusa*, Sim. *ibid.*; not *Phoneyusa*, Karsch).

The examination of a longer series of forms than Mons. Simon had an opportunity of studying convinces me that the characters he relied upon to distinguish generically the two species named *greshoffi*, Sim., from the Congo, and *greefi*, Karsch, from St. Thomas in the Gulf of Guinea—regarded respectively as the types of *Hysterochrates* and *Phoneyusa*—are merely of specific rank, practically every gradation being traceable between the two. According to Simon, *Hysterochrates* might be recognized by having the 4th tibia very much swollen and the tarsus of the palp in the female not tumid above.

#### HYSTEROCRATES GIGAS, sp. n.

♀.—*Colour*: body and limbs covered with a dense clothing of brownish or rusty-red hairs; the bristles greyish red.

*Carapace* much longer than wide, its width a little greater than the length of the 4th femur, the length equalling the length of the patella and tibia of the same leg; cephalic region rather high, defined by conspicuous grooves; the fovea small, crescentic, the area between the horns of the crescent elevated: ocular tubercle small, a little wider than the fovea, the width equal to the length + the narrow clypeal area, which is about equal to the diameter of a median eye. *Eyes* of front series very slightly procurved, subequal in size (the median a little larger) and unequally spaced, the distance between the medians being only a little less than their diameter, that between the median and lateral about equal to the small diameter of the lateral; the posterior line of eyes slightly recurved, the lateral noticeably smaller than the anterior lateral, the space between them about as wide as the space between anterior lateral and anterior median.

*Sternum* wide, narrowed between the 1st coxæ, widest between the coxæ of the 2nd legs; the posterior impressions far removed from the edge, the distance between them about equal to the

width of the tubercle or of the labium. *Labium* almost as long as wide, densely spinulose.

*Mandibles* robust, the curvature of the upper and anterior surface studded amidst the hairs with a number of *smooth round jet-black granules*; the lower half of the outer surface almost naked, the inferior margin granular behind and armed internally with 11 blunt teeth.

*Legs* longish, robust, 4, 1, 2, 3; the 4th exceeding the 1st by a little less than the length of its tarsus; patella and tibia of 4th only slightly longer than of the 1st (26 mm.: 25·3); the patellæ of the two about equal, but the femur, tibia, and protarsus of the 4th respectively longer; the 4th leg also stouter than the 1st, its femur, patella, and tibia being noticeably thicker, the distal end of its femur a little wider than the patella, which is also wider than the tibia, the width of the patella less than half its length and about equal to its height, the width and height of the tibia about equal and just about one-third of its length, the protarsus distinctly although not very much longer than the tibia (17·5 and 15·5 mm.). The legs unarmed except for a few spines at the apices of the protarsi; the setæ on the legs are few in number and not long; there is a curious brush of hairs on the upperside of the coxa and trochanter of the 1st and 2nd legs.

*Palp* reaching almost to the apex of the tibia of the 1st leg; the area on the inner surface of the maxilla lying between the suture and the oral fringe normally hairy, the whole appendage unarmed; tibia and tarsus about equal in length, the tarsus longer than that of the other appendages.

*Abdomen* elongate, oval. *Posterior spinner* equal to length of 3rd protarsus.

♂. Carapace broader and flatter than in the ♀; legs longer; mandibles smaller but more noticeably tubercular; patella and tibia of 1st leg longer than of 4th; the legs also considerably more bristly than in the ♀, especially on the posterior tarsi and protarsi, the posterior tibiæ also relatively thicker. Length of carapace equal to that of tibia+protarsus of 3rd leg and only slightly excelling tarsus and protarsus of 2nd; its width equalling femur of 4th; in ♀ length of carapace almost equals that of tibia, protarsus, and tarsus of 3rd leg, and tarsus and protarsus+three-quarters of the tibia of the 2nd. Palp as in the following species, *H. crassipes*, except that the spine of the organ lies a little nearer the bulb and the triangular tooth is a little more prominent.

*Measurements in millimetres.*—♂. Total length 47; length of carapace 21·3, width 18·8; width across cephalic sulci 11; length of 1st leg 66, of 2nd 58, of 3rd 51, of 4th 71; patella and tibia of 1st 26·5, of 4th 25·5; length of tibia of 4th 15·3, width 5.

♀. Total length 54; length of carapace 27, width 22; abdomen, length 27, width 18; length of sternum 11·5, width 10; 1st leg 65, 2nd 56, 3rd 53, 4th 73·5; patella and tibia of 1st 25, of 4th 27; length of tibia of 4th 15·3, width 5.



*Loc.* Cameroons. ♀ type (*J. M. C. Johnston*); ♂ (*Mr. Higgins*). The Museum also has a mutilated example, apparently of this species, from the Oil River (*H. H. Johnston*).

From *Hysterochrates greefi*, Karsch (Sitz. Ges. Nat. Marburg, 1884, p. 60), from the island of St. Thomas, this new species, as well as the others described in this paper, seems to differ in having considerably longer legs. Karsch, for instance, states that in a specimen of his species in which the carapace was 30 mm. long, the 1st leg was 62 and the last 65; whereas the measurement of the legs in *gigas* is considerably greater, though the carapace is actually shorter.

*HYSTEROCRATES CRASSIPES*, sp. n. (Plate XLI. fig. 4 c.)

♀. Allied to the preceding, but differing in the following particulars:—

*Colour* paler, being of a greyish yellowish-brown.

The width of the *carapace* is equal to the length of the posterior femur, and the length is distinctly less than the length of the patella and tibia of the same leg; the cephalic region is lower, the fovea shallower, and the area immediately in front of it not elevated; the ocular tubercle is a little longer, the anterior line of eyes more procurved, the posterior row more recurved. In the *mandible* the curvature of the front and upper surfaces is more abrupt.

The *legs* are not of the same relative length, the 4th exceeding the 1st by more than the length of its tarsus; the patella and tibia of 4th are very distinctly longer than those of the 1st (24 mm.: 21 mm.); the patella and tibia are as wide as the distal end of the femur; the width and height of the patella are about equal and exceed half its length; the tibia is convex above, its height and width are about equal, and considerably more than one-third of its length; the protarsus is only longer than the tibia by the merest fraction (15 mm.: 14.5 mm.). But in addition to being longer and stouter, the legs of the 4th pair differ from those of *gigas* in having their protarsi and tarsi furnished with long erect bristles.

♂. With longer, thinner legs than the ♀; mandibles smaller, but with the granules more prominent. There is no spur on the tibia of the 1st leg; the palp is short and weak, scarcely overlapping the patella of the 1st leg; the tarsus is short, truncate, and biscopulate; the bulb is remarkable, being polished and oval, with the spine, which is long, slender, and slightly curved at its distal end, rising on the outer side of the bulb, close to the base, the base of the bulb posteriorly bears also a tooth and outside this a short carina.

The width of the carapace is much less than the length of the posterior femur, and the length is much less than that of the patella and tibia of the 1st leg, which are only a little less than the corresponding segments of the 4th; the width of the 4th patella is less than half its length, and that of the tibia is about

one-third of its length; the 4th protarsus is longer than the 4th tibia.

*Measurements in millimetres.*—♀. Total length 47; carapace, length 23, width 19; 1st leg 56·5, 2nd 49, 3rd 45, 4th 67; patella and tibia of 1st 22, of 4th 24; tibia of 4th 14·4, width 5·8.

♂. Carapace, length 19·5, width 17; abdomen, length 19·5, width 11·5; 1st leg 57, 2nd 52·5, 3rd 46, 4th 65; patella and tibia of 1st 22, of 4th 23; length of 4th tibia 14·5, width 4·5.

*Loc.* Cameroons (*H. H. Johnston*).

In the thickness of its posterior legs this species approaches *H. greshoffi*, Simon (Ann. Soc. Ent. France, 1891, p. 298), the type of the genus, from the Upper Congo; but certainly differs in that the height of the tibia is less than that of the femur, and but little excels that of the patella, whereas in *greshoffi*, though the height of the tibia, as in *crassipes*, is more than one-third of its length, it is at the same time much greater than the height of the patella or femur.

From the other species described in this paper *crassipes* may be recognized by the features pointed out in the diagnosis.

*HYSTEROCRATES LATICEPS*, sp. n. (Plate XLI. figs. 4–4 b.)

♂. Closely related to the male of *H. gigas*, but with the carapace noticeably broader, especially in front; the width, for example, is equal to the distance between the posterior border and the ocular tubercle, whereas in *gigas* it falls short of that distance by about 1 mm.; again, the width of the head across the cephalic sulci exceeds the distance between the fovea and the tubercle by half the length of the latter, the two distances being just equal in *H. gigas*. The posterior leg, too, is thinner (*cf.* measurements of tibia). And lastly, in the palpal organ the bulb is smaller and the spine less curved.

*Measurements in millimetres.* Total length 46; length of carapace 22, width 20·5; width across cephalic sulci 13; length of 1st leg 71, of 2nd 60, of 3rd 55, of 4th 74·5; patella and tibia of 1st 28, of 4th 26; tibia of 4th 16·5 in length, 4·5 in width.

*Loc.* Old Calabar. A single male example (*Miss Kingsley*).

A specimen which I identify as the female of this species was obtained by Dr. Alexander Smith in Old Calabar more than 20 years ago. It gives the following measurements for comparison with those of the females of *H. crassipes* and *H. gigas*:—Total length 44; length of carapace 21, width 18·6; length of 1st leg 57, of 2nd 50, of 3rd 47, of 4th 63; patella and tibia of 1st 22, of 4th 22; tibia of 4th 13, width 4.

These measurements show that the female of this species, assuming it to be rightly sexed, differs specifically from that of *H. crassipes* in its thinner hind legs, and from *H. gigas* in its much shorter carapace, the length of which is distinctly less than that of the protarsus and tarsus of the 4th, as well as the tibia and pro-

tarsus of the 1st, whereas in *H. gigas* the length of the carapace slightly exceeds both these measurements.

The foregoing species may be recognized as follows:—

*Males.*

- a. Patella and tibia of 4th leg longer than the same segments of the 1st leg; femur of 4th considerably longer than the width of the carapace ..... *crassipes*.
- b. Patella and tibia of 4th leg a little shorter than those of the 1st leg; width of carapace about equal to the length of the 4th femur.
- a'. Carapace and head wider; width of carapace equal to the length from the tubercle to the posterior border; width across head from cephalic grooves equal to distance between fovea and median eyes ..... *laticeps*.
- b'. Carapace and head narrower, width of former less than distance between posterior border and tubercle; and of head equal to distance between tubercle and fovea ..... *gigas*.

*Females.*

- a. Posterior legs thicker, the tibia as wide as the patella or the distal end of the femur, its width very much exceeding a third of its length; tarsus of palp a little inflated above at the base... *crassipes*.
- b. Posterior legs thinner, the tibia thinner than the distal end of the femur, its width equalling about one-third of its length; tarsus of palp not noticeably tumid above at the base.
- a'. Carapace very long, the area between the tubercle and the posterior median emargination noticeably exceeding the width, its total length about equal to that of the tibia and protarsus of the 1st leg..... *gigas*.
- b'. Carapace shorter, distance between tubercle and emargination not exceeding its width, its total length less than the length of the tibia and protarsus of the 1st leg ..... *laticeps*.

Genus EUMENOPHORUS, nov.

♀. Allied to *Selenogyrrus* (*cf. infra*), with the procurved fovea, and the legs long and slender, the 4th being longer than the 1st, though their patellæ and protarsi are equal; so, too, are the tarsal scopulæ entire on the 1st, 2nd, and 3rd pair of legs, and divided on the 4th. The following characters, however, point to generic differences between the two:—

(1) The legs are without spines, with the exception of a few at the apex of the protarsi.

(2) The posterior sternal sigilla are situated some distance from the margin of the plate as in *Selenocosmia*, the pair in front of them being also visibly away from the edge, the sternum itself being as broad as long. Labium nearly as long as broad, its edge, like the inner angles of the maxillæ, densely granulate.

(3) The claws of the legs are smooth and unarmed.

EUMENOPHORUS CLEMENTSII, sp. n.

Colour a uniform mouse-brown.

Carapace flattish, broad, the width equalling the distance between



the hinder border and the ocular tubercle; the radiating grooves conspicuous; tubercle small, transverse; eyes small and compact, those of the front line slightly procurved, subequal and equidistant, the distance between the medians less than a diameter; the posterior median eye less convex, but covering a larger area than the posterior lateral.

Lower surface of *mandible* armed internally with 10 strong teeth, the posterior half of this surface covered with numerous smaller granular teeth.

*Legs.* Patella and tibia of 4th and of 1st slightly excelling the length of the carapace; the distal segments of the 3rd and 4th pairs covered with erect curled bristles somewhat as in *Coremiocnemis*, though less thickly; the protarsal scopulæ not distally incrassate as in *Phoneyusa* and *Hysterochrates*, the scopulæ extending practically to the base of the segments in the legs of the 1st and 2nd pairs, but not covering half the segment in the 3rd, and represented by merely a small patch on the 4th; the tarsal scopulæ complete and thick on the 1st, 2nd, and 3rd, but very weak on the 4th, being intermixed with setæ, and consisting of a narrow band on each side of the middle line.

*Measurements in millimetres.* Total length 36; length of carapace 17, width 15; length of 1st leg 47, of 2nd 43, of 3rd 39, of 4th 52; patella and tibia of 1st 18, of 3rd 13.5, of 4th 18.

*Loc.* Sierra Leone. A single female example (*Surgeon-Capt. Clements*).

Some of the characters mentioned in the specific description may prove ultimately to be of generic importance as compared with *Selenogyrrus* and other genera. Attention, for example, may be drawn to the scopulæ and hair-armature of the 4th leg, the size of the granular area on the lower surface of the mandible, size of the eyes, &c.

#### Genus SELENOGYRRUS, nov.

*Carapace* oval, elongate; fovea small, linear, but strongly procurved as in *Selenocosmia*; cephalic area moderately elevated; ocular tubercle transverse, moderately large. *Eyes* with anterior row nearly straight, slightly procurved; posterior row recurved.

*Mandibles* without external scopula, armed below with a single row of teeth. *Maxillæ* without stridulating organ, the basal inner angle, like the labium, thickly spinulose. *Labium* transversely oblong, at least one-third wider than long.

*Legs* moderately long, 4, 1, 2, 3; the 4th (measured from the base of the femur) considerably longer than the 1st; tarsal and protarsal scopulæ entire on 1st, 2nd, and 3rd legs; tarsal scopula of 4th divided by a narrow band of setæ; that on the protarsus also almost entirely divided; protarsal scopulæ of 1st and 2nd legs broad only in the distal half of the segments, not extending quite to the base on the 1st, covering a little less on the 2nd, only occupying the distal half on the 3rd and the distal third on the

4th; tibiae of legs weakly spined; protarsus of 4th strongly spined, of the 2nd much less strongly, of the 1st and 2nd scarcely spined; claws with a few small teeth (? on first leg).

*Sternum* oval, longer than broad; muscular scars (sigilla) marginal, the posterior deep.

*Spinning mammillae* normal; the external less than half the length of the carapace, longer than the tarsi.

♂. Anterior tibia with two spurs, the external long and curved, the internal short and straight; the bulb of the palpal organ gradually narrowed below and passing without any sharp line of demarcation into the spine.

Type, *Selenogyrus ceruleus*.

#### SELENOGYRUS CERULEUS, sp. n.

♀.—*Colour*. Carapace, abdomen, and limbs covered with greyish-brown hairs, showing, especially on the limbs, strong metallic-blue reflections.

*Eyes* of anterior line equidistant and subequal, the diameter of the medians excelling the short diameter of the laterals, but less than their long diameter; posterior laterals smaller than anterior laterals.

Length of *carapace* about equal to length of patella and tibia of 1st leg or of 4th leg, the two being substantially equal; also about equal to the length of the protarsus and half the tarsus of the 4th.

*Legs*: tibiae armed below distally with a pair of spines; tibia of 3rd with about three additional spines, of 4th with only one additional posterior spine; protarsi of 1st and 2nd with an inferior apical spine; protarsus of 3rd with a few spines on the proximal side of the scopula and a posterior series above; protarsus of 4th armed below with some 12 or 13 spines; protarsal scopula of 4th leg very distinct; tarsal scopula divided by a very narrow band of setae; the rest of the lower surface thickly scopulate. Lower surface of *mandible* covered in its posterior third with a cluster of granules.

*Measurements in millimetres*. Total length 36; length of carapace 17.3, width 13.5; length of 1st leg 45, of 2nd 41, of 3rd 39, of 4th 51; patella and tibia of 1st 16.5, of 2nd 15, of 3rd 12.5, of 4th 16.3.

*Loc.* Sierra Leone.

A single female example (*Surgeon-Capt. Clements*).

#### SELENOGYRUS AUREUS, sp. n. (Plate XLI. figs. 2-2 a.)

♂.—*Colour*. Body, limbs, and carapace covered with a coating of brownish-yellow hairs, showing a fiery golden tinge, especially on the femora of the legs.

*Carapace* a little broader than in the female, the width, however, less than the distance between the tubercle and the posterior margin.

*Legs* long and slender; patella and tibia of 1st and 4th subequal,

longer than carapace; protarsus of 4th also longer than carapace; tarsi four or five times as long as broad; femur of the 3rd leg thicker than the others; tibia of 1st armed with two inferior spines, one median and one basal; tibia of 3rd armed with about 9 spines (2nd legs absent); protarsi of 3rd and 4th copiously spined; protarsus of 1st with an inferior median apical spine.

*Tibial spurs.* Short spur straight, longer than broad, acuminate, armed below with a strong spine, also beset with bristles; long spur about twice the length of the other, cylindrical, curved, bristly, with a strong superior spine at its apex; also a spine at its base on the outer side.

*Palp.* Femur with an internal apical spine; tibia with an external apical spine; tarsus with a double scopular pad; spine of palpal organ curved forwards and inwards towards the apex, which ends with a small button-shaped tip resembling that of *Selenocosmia lanipes* but smaller.

*Measurements in millimetres.* Total length 27; length of carapace 11.5, width 9.5; length of 1st leg 41, of 3rd 34.5, of 4th 45.5; patella and tibia of 1st 14, of 3rd 10, of 4th 14.

*Loc.* Sierra Leone.

A single male example (without further history).

The male characters of the genus *Selenogyrrus* have been taken from the example just described as *S. aureus*, since the latter seems to me to differ from *S. cæruleus* in features only of specific and sexual importance. In separating the two specifically, the colouring of the hairy clothing of the body has been chiefly relied upon. The difference in size, too, may be noted.

#### Genus MIASCHISTOPUS, nov.

♂. *Carapace* longer than wide, cephalic area moderately elevated; fovea deep and transverse; tubercle close to anterior margin. *Eyes* of anterior line a little procurved, the anterior edge of the medians in front of the centre of the laterals; medians and laterals subequal, the long diameter of the latter excelling the diameter of the medians, the short diameter less than it; distance between the medians less than their diameter, but greater than their radius, and a little greater than the distance between the medians and laterals; eyes of posterior line recurved, much smaller than those of anterior, adjacent, the laterals slightly the larger, and separated from the anterior laterals by a space almost if not quite equalling their long diameter.

*Mandible* armed below with an internal row of 10 teeth and a few granules behind.

*Maxilla* internally spinulose, scantily clothed with setæ between the suture and the oral fringe.

*Labium* scantily spinulose apically. *Sternum* wide, subcircular, nearly as wide as long; posterior sigilla remote from the margin, but the distance between them about four times as great as the



distance between them and the margin; the second pair also removed a small distance from the edge.

*Legs* 4, 1, 2, 3; tarsal scopula of 4th divided by a narrow but distinct band of setæ, of 3rd not divided, with merely a few scattered setæ along the middle line; of 2nd and 1st entire; scopula on 1st protarsus very scanty on the proximal half, not extending to the base, on 2nd covering about half the segment, on the 3rd the distal third of the segment, and the 4th represented by two narrow and scanty bands of scopulate hairs; tibiæ and protarsi of all the legs spiny, as well as the femora and patellæ in part. *Claws* furnished with a row of small teeth.

*External spinners* about half the length of the carapace; the internal separated by a space which is nearly equal to their length.

Tibia of 1st leg in male not spurred.

*MIASCHISTOPUS RAPIDUS*, sp. n. (Plate XLI. fig. 5.)

*Colour.* Carapace covered with yellowish-brown hairs, those on the legs browner and intermixed with blackish setæ; coxæ, sternum, and lower surface of the femora greyer; a band of whitish hairs on tip of femora, patella, tibiæ, and protarsi; abdomen covered below with brownish-yellow hairs; the upper surface naked behind, covered in front with long greyish or reddish erect setæ rising out of a greyish coating of hairs.

*Carapace* as long as patella and tibia of 3rd leg, excelling patella, tibia, and tarsus of palp, shorter than protarsus of 4th, but longer than the other protarsi by about half the length of their respective tarsi; width of carapace about equal to tibia of 4th, greater than the other tibiæ.

*Legs.* Patella and tibia of 4th a little excelling those of 1st and excelling the tarsi and protarsi of the 1st, 2nd, and 3rd pairs; patella, tibia, and tarsus of 3rd a little less than those of 1st, and just about equal to those of the 2nd; 1st leg shorter than 4th by about the length of the tarsus, 3rd shorter than 1st by almost the same amount; femora of legs with an internal apical spine, patella of 3rd and 4th with an internal (posterior) spine; tibiæ of all the legs armed with many strong spines, with always a pair and sometimes more at the apex below; protarsi of 1st and 2nd spined beneath at the base and tip of the scopula, the 1st with only one at the base, the 2nd with 2 or 3; protarsi of 3rd and 4th very strongly spined both below and above; tibia of 3rd thick, the width more than one-third of its length. *Palp* extending just past the patella of the 1st leg, its femur armed with an internal apical spine, its tibia with an internal distal cluster of about a dozen spines.

*Palpal organ* prominent posteriorly at the base, the bulbous part passing without any constriction into the spine, which is exceeding broad basally, where it bears a distinct posterior nodular prominence, and when viewed from the side is triangular, pointed below, the apex being in no sense filiform.

*Measurements in millimetres.* Total length 22; length of carapace 10, width 9; length of 1st leg 35, of 2nd 32.5, of 3rd 31, of 4th 41; patella and tibia of 1st 12.8, of 4th 13.5; protarsus of 4th 12.

*Loc.* W. Africa (*Keyserling coll.*). Two male examples.

These two examples are the specimens referred to by Karsch (Berl. ent. Zeits. 1884, p. 350) as the males of *Diplura longipalpis*, Karsch (Zeits. Naturwiss. (3) iv. p. 564, 1879), which was based upon a female from the same area. But the specimens belong neither to the genus *Diplura* nor yet to the family Dipluridae. Moreover, the evidence that they are in reality the males of the species named *longipalpis* is to my mind somewhat slender.

[P.S., *July 30th*, 1897.—Since this paper was written and read before the Society in the middle of June, I have discovered in some of the African genera of Theraphosinae an organ which I believe furnishes a key to their affinities of greater value than those relied upon for grouping them on p. 745. This organ is a curious system of hairs, certainly of a stridulating nature, developed on the anterior side of the upper half of the coxa and trochanter of the 1st and in a lesser degree of the 2nd leg also.

In the diagnosis of *Hysteroocrates gigas* mention is made of a "curious brush of hairs on the upper side of the coxa and trochanter" of the limbs in question. When the 1st leg of this species is removed and the organ submitted to closer inspection, under a lens of low power, it will be seen that the so-called brush of hairs consists of a fringe of close-set whitish feathery hairs. On the trochanter this fringe overshadows and probably protects from dirt a number of long, erect, but apically curled stout spines arranged somewhat irregularly in two rows. On the coxa the hairs of the fringe become stout and spiniform where, at the base of the segment, they extend downwards towards the coxal suture, and distally some of them become isolated so as to have perfect freedom for vibration. But in addition to these whitish plumose spines there are two long, stout, black, simple spines, the larger being clavate and lying amongst if not above the fringe, the other being situated below it and not expanded at its distal end, but sharply pointed. Below the suture the bases of the upstanding bristles are very stout, black, and shining, while amongst them arise some delicate erect hairs with shining hyaline clavate tips. The large bristles that lie above the suture of the coxa are set in vibration when this segment is rubbed against the adjacent surface of the coxa of the pedipalp, the distal half of which is covered with hairs, amongst which arise a number of long, stout but pointed spines. Similarly, the spiniform bristles on the trochanter are rubbed against the posterior aspect of the trochanter of the pedipalp, which is covered with stiff straight hairs. When the spider is allowed to dry after removal from alcohol, the

stridulation may be easily produced artificially, the notes on the coxa giving rise to a distinct 'click, click' when scraped against the spines on the maxilla, while the spines and hairs on the trochanters produce a sound resembling that which results from the rubbing of silk.

An organ identical in all essential details with that described above is to be met with in all the species known to me that I refer to the following genera:—*Hysterochrates*, *Phoneysa*, *Monocentropus*, *Anoploscelus*, *Eumenophorus*, and *Encyocrates*. I further venture to prophesy that it will be found both in *Pelinobius* and *Loxomphalia* when these genera come to be re-examined. It does not, on the contrary, exist either in the species of *Scodra* or of *Miaschistopus*, or of *Selenogyrus*; nor in any of the S. European genera examined by me (*Chatopelma*, *Isehnocolus*), nor in those that inhabit Central and South America, all of which I have above referred to the Theraphosinæ.

Taking then into consideration the fact that the genera above mentioned as possessing this organ inhabit the same geographical area—for, so far as the Spiders are concerned, Socotra and Madagascar are distinctly Ethiopian in their affinities,—and that, in addition to the stridulating-organ, they possess other characters in common: for example, the subcentral position of the posterior sternal sigilla<sup>1</sup>, the almost total absence of spines on the legs and of teeth on the claws, the absence of tibial spurs in the male, except in *Monocentropus* where there is a small one,—these facts point strongly to the conclusion that these genera constitute a perfectly natural assemblage; an assemblage as natural, that is to say, as the Harpactirinae, Selenocosmiinae, or Ornithoctoninae. I propose therefore to classify them as a subfamily which may be termed the *Eumenophorinae*. In the table of subfamilies printed on p. 744, this new group will take its place under the heading *b*<sup>2</sup> as follows:—

*b*<sup>2</sup>. Without any stridulating organ between the mandible and maxilla.

*a*<sup>3</sup>. A stridulating organ present between the posterior surface of the maxilla and the anterior surface of the coxa of the 1st leg, consisting of a series of strong spines on the distal extremity of the maxilla and on the upper side of the coxa and trochanter of the 1st leg, of a fringe of close-set feathery hairs below and amongst which are some stout, long, plumose or simple bristles constituting the vibratory notes of the organ.

EUMENOPHORINÆ, nov. Tropical Africa, Socotra, Madagascar.

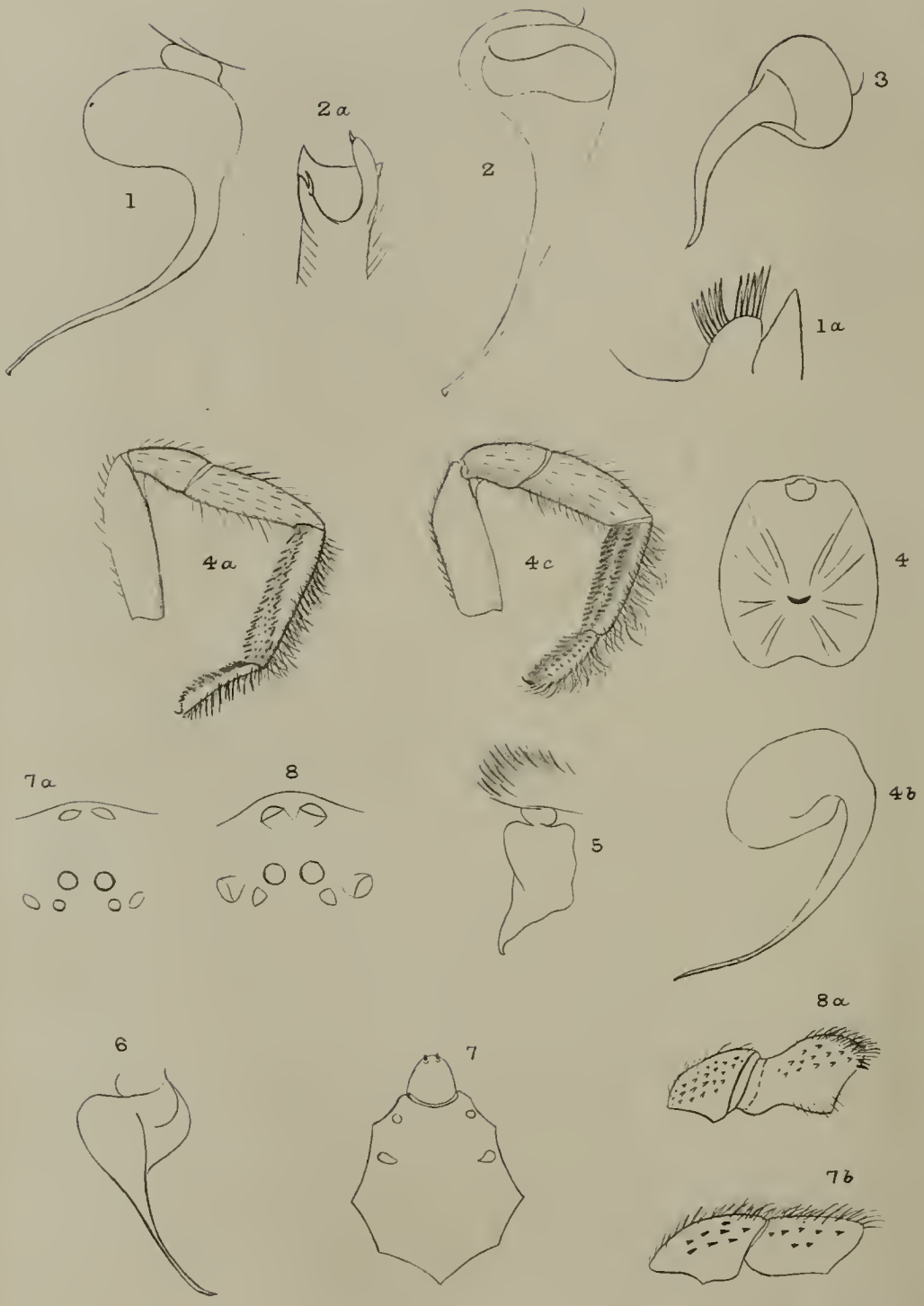
*b*<sup>3</sup>. Without the stridulating organ above described.....

THERAPHOSINÆ.

<sup>1</sup> Their submarginal position in the small example in the Museum referred to *Encyocrates* and mentioned on p. 747 is, I suspect, attributable to immaturity.







F.O. Pickard-Cambridge del. et lith.

West, Newman imp.

Tropical African Mygalomorphæ.